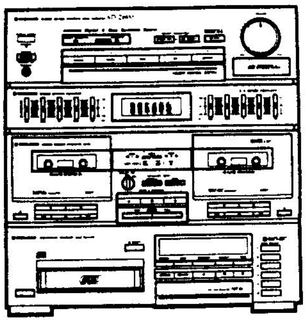
PIONEER
The Art of Entertainment

Service Manual



ORDER NO.
ARP2154

STEREO MULTI CD CASSETTE DECK AMPLIFIER

XD-Z64M

MODEL XD-Z64M HAS FOLLOWING VERSIONS :

Type	Power requirement	Export destination
HE	AC220V, 240V (Switchable) *	European continent
HB	AC220V, 240V (Switchable) *	United Kingdom
HEWZIW	AC220V, 240V (Switchable) *	Germany and Italy

* Change the jumper wires of assembly board.

- **This manual is applicable to the XD-Z64M/HE, HB and HEWZIW types.**
- **As to the HB and HEWZIW types, refer to pages 135-149.**
- **This product is a component of a system. As to the system composition, refer to the system manual.**
- **As to the MECHANISM DESCRIPTION, refer to the PD-Z84M service guide (ARP2190).**
- **Ce manuel pour le service comprend les explications de réglage en français.**
- **Este manual de servicio trata del método ajuste escrito en español.**

CONTENTS

1. SAFETY INFORMATION 2
2. EXPLODED VIEWS, PACKING AND PARTS LIST 3
3. SCHEMATIC DIAGRAM AND P.C.BOARDS CONNECTION DIAGRAM 21
4. P.C.B 's PARTS LIST 69
5. ADJUSTMENTS 76
5. RÉGLAGE 95
5. AJUSTE 115
6. FOR HB AND HEWZIW TYPES 135
7. PANEL FACILITIES 150
8. SPECIFICATIONS 155

PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
PIONEER ELECTRONICS SERVICE INC. P.O. Box 1760, Long Beach, California 90801 U.S.A.
PIONEER ELECTRONICS OF CANADA, INC. 505 Cochrane Drive, Markham, Ontario L3R 8E3 Canada
PIONEER ELECTRONIC [EUROPE] N.V. Keetberglaan 1, 2740 Beveren, Belgium
PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia TEL: [03] 580-9911

© PIONEER ELECTRONIC CORPORATION 1991

YV JAN. 1991 Printed in Japan

1. SAFETY INFORMATION

(FOR EUROPEAN MODEL ONLY)

VARO!
AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.

LASER
Kuva 1
Lasersateilyn
varoitusmerkki

WARNING!
DEVICE INCLUDES LASER DIODE WHICH EMITS INVISIBLE INFRARED RADIATION WHICH IS DANGEROUS TO EYES. THERE IS A WARNING SIGN ACCORDING TO PICTURE 1 INSIDE THE DEVICE CLOSE TO THE LASER DIODE.

LASER
Picture 1
Warning sign for
laser radiation

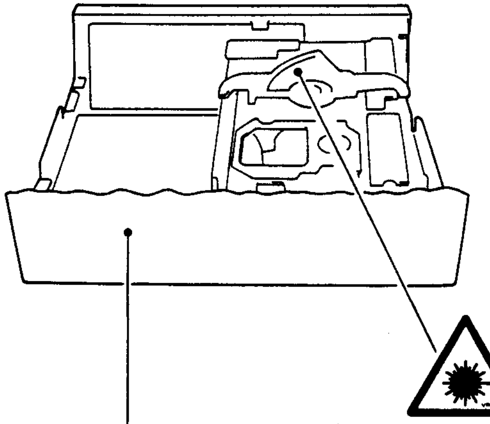
ADVERSEL:
USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSAETTELSE FOR STRÅLING.

IMPORTANT
THIS PIONEER APPARATUS CONTAINS LASER OF HIGHER CLASS THAN 1. SERVICING OPERATION OF THE APPARATUS SHOULD BE DONE BY A SPECIALLY INSTRUCTED PERSON.

VARNING!
OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD. BETRAKTA EJ STRÅLEN.

LASER DIODE CHARACTERISTICS
MAXIMUM OUTPUT POWER: 5 mw
WAVELENGTH: 780-785 nm

LABEL CHECK (MULTI MAGAZINE type)

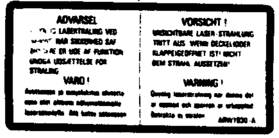


HE, HEWZIW and HB types

Additional Laser Caution

1. Laser Interlock Mechanism
   The ON/OFF (ON : low level, OFF : high level) status of the LPS1 (S601) and LPS2 (S602) switches for detecting the loading state is detected by the system microprocessor, and the design prevents laser diode oscillation when both switches LPS1 and LPS2 are not ON (low level)(clamped state).
   Thus, interlock will no longer function if switches LPS1 (S601) and LPS2(S602) are deliberately shorted.
   Also, in the test mode*, the interlock mechanism does not operate too.
   Laser diode oscillation will continue if pins 2 and 3 of CXA1471S (IC101) are connected to ground or pin 20 is connected to high level (ON) or the terminals of Q101 are shorted to each other (fault condition).
2. When the cover is opened with the servo mechanism block removed to be turned over, close viewing of the objective lens with the naked eye will cause exposure to a Class 1 or higher laser beam.

* Refer to page 81.



ADVARSEL

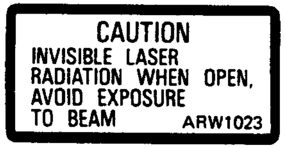
VARO !

VORSICHT !

VARNING !

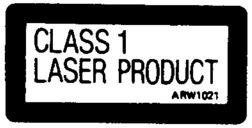
ARW1030-A

HE and HEWZIW types



CAUTION
INVISIBLE LASER
RADIATION WHEN OPEN,
AVOID EXPOSURE
TO BEAM ARW1023

HB type



CLASS 1
LASER PRODUCT
ARW1021

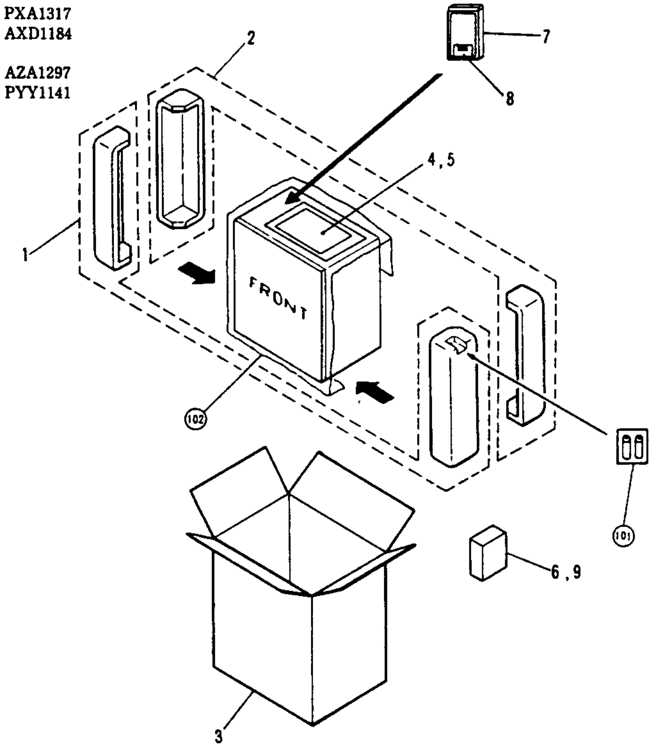
HE, HB and HEWZIW types

2. EXPLODED VIEWS, PACKING AND PARTS LIST

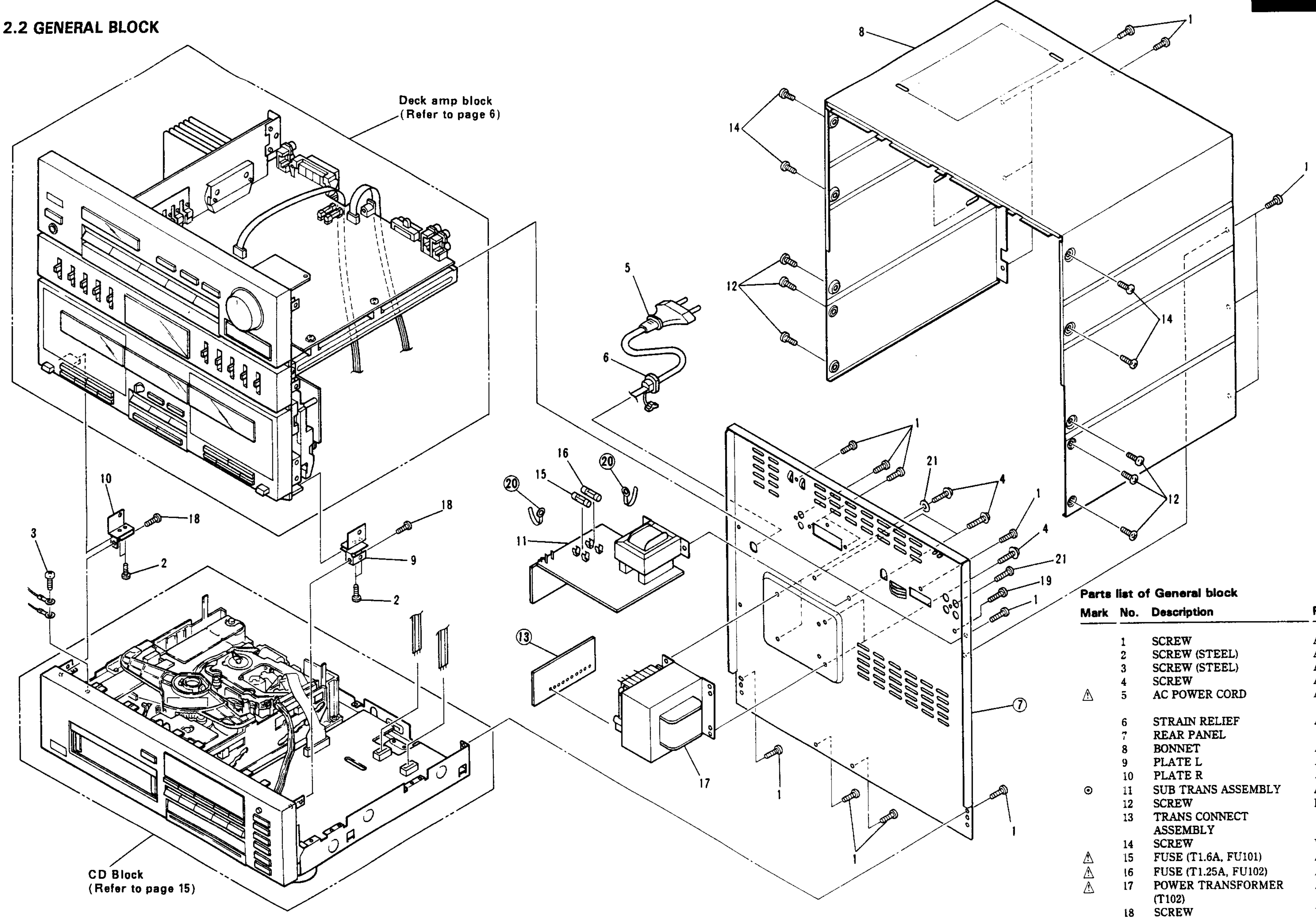
NOTES:
- *Parts without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

2.1 PACKING

Mark	No.	Description	Parts No.
	1	FRONT PAD L, R	AHA1406
	2	REAR PAD L, R	AHA1407
	3	PACKING CASE	AHD1969
	4	OPERATIONG INSTRUCTIONS (Dutch, Swedish, Spanish, Portuguese)	ARC1243
	5	OPERATIONG INSTRUCTIONS (English, German, French, Italian)	ARE1175
	6	MAGAZIN ASSEMBLY	PXA1317
	7	REMOTE CONTROL UNIT (CU−DC021)	AXD1184
	8	BATTERY COVER	AZA1297
	9	PP CASE	PYY1141
	101	DRY CELL BATTERY (R03, AAA)	
	102	SHEET	



2.2 GENERAL BLOCK


1
2
3
4
5
Deck amp block
(Refer to page 6)
CD Block
(Refer to page 15)
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
A
B
C
D

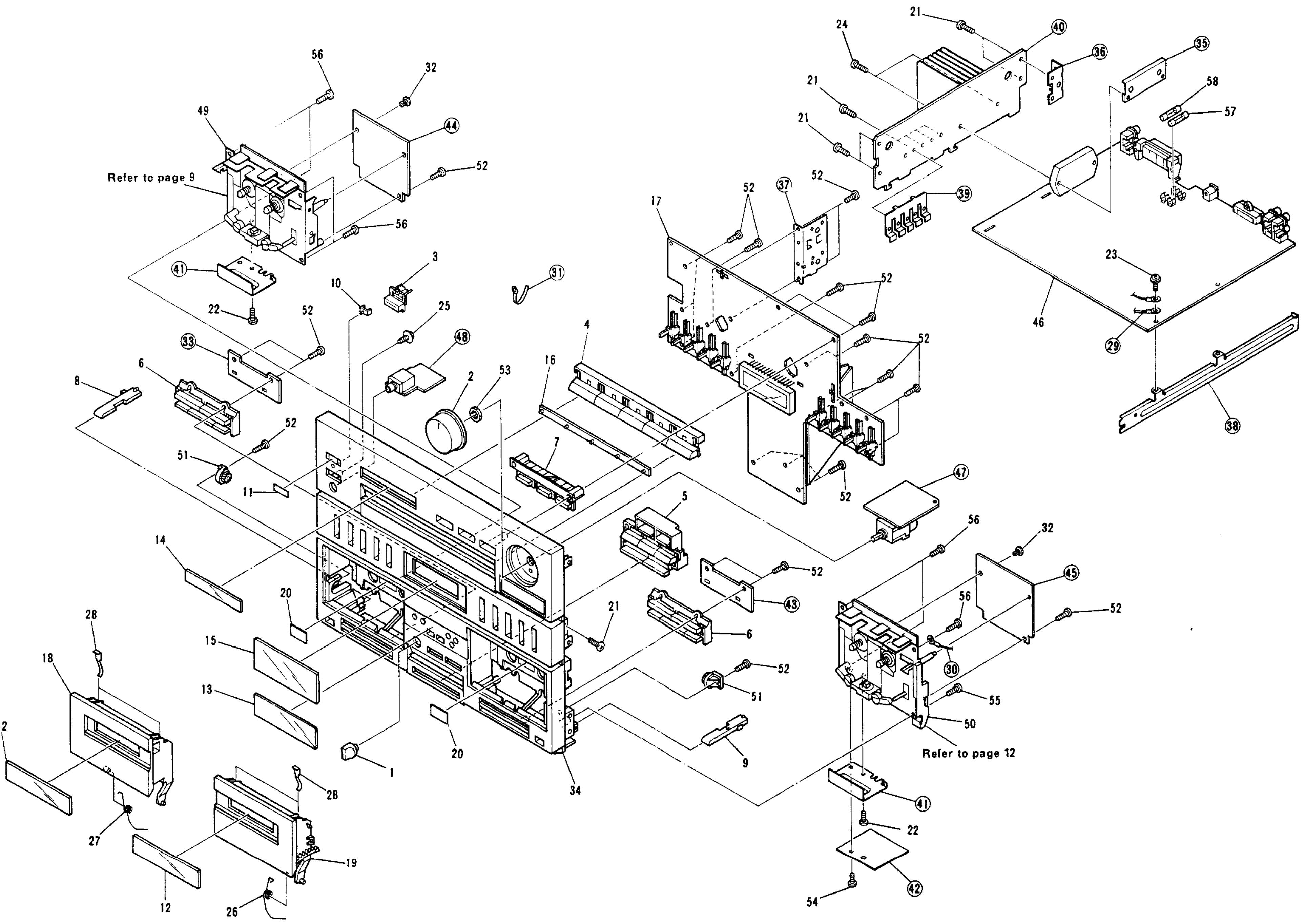
Parts list of General block

Mark	No.	Description	Parts No.
	1	SCREW	ABA−298
	2	SCREW (STEEL)	ABA1007
	3	SCREW (STEEL)	ABA1009
	4	SCREW	ABA1082
⚠	5	AC POWER CORD	ADG1049
	6	STRAIN RELIEF	AEC−882
	7	REAR PANEL	
	8	BONNET	ANE1275
	9	PLATE L	ANG1536
	10	PLATE R	ANG1537
⊙	11	SUB TRANS ASSEMBLY	AWR1056
	12	SCREW	BBZ30P080FZK
	13	TRANS CONNECT ASSEMBLY	
	14	SCREW	VPZ30P080FZK
⚠	15	FUSE (T1.6A, FU101)	AEK−405
⚠	16	FUSE (T1.25A, FU102)	AEK−018
⚠	17	POWER TRANSFORMER (T102)	ATS1318
	18	SCREW	VPZ30P080FMC
	19	SCREW	VBZ35P080FZK
	20	NYLON BINDER	
	21	WASHER	ABE−052

2.3 DECK AMP BLOCK

Parts list of Deck amp block

Mark	No.	Description	Parts No.
	1	ROTARY KNOB (DOLBY NR)	AAB1136
	2	VOL KNOB (VOLUME)	AAB1200
	3	POWER BUTTON	AAD1674
	4	FUNCTION BUTTON (PLS)	AAD1894
	5	REC. COPY BUTTON (PLS)	AAD1895
	6	DECK PLAY BUTTON (PLS)	AAD1896
	7	AI BUTTON (PLS)	AAD1897
	8	EJECT BUTTON L (PLS)	AAD1898
	9	EJECT BUTTON R (PLS)	AAD1922
	10	LENS (POWER IND)	AAK1800
	11	FILTER (REMOTE SENSOR)	AAK1812
	12	DECORATIVE PLATE (DOOR)	AAK2065
	13	DECORATIVE PLATE A (DECK)	AAK2067
	14	AI DECORATIVE PLATE	AAK2068
	15	DECORATIVE PLATE (GEQ)	AAK2069
	16	INDICATOR LENS	AAK2075
⊙	17	DISPLAY ASSEMBLY	AWZ3350
	18	CASSETTE DOOR (R)	AAN1250
	19	CASSETTE DOOR (L)	AAN1251
	20	FABEL (PAPER)	AAX1301
	21	SCREW	ABA-298
	22	SCREW (STEEL)	ABA1009
	23	SCREW (STEEL)	ABA1011
	24	SCREW	ABA1018
	25	SCREW (STEEL)	ABA1095
	26	DOOR SPRING L	ABH1068
	27	DOOR SPRING R	ABH1069
	28	KEEP PLATE	ABK1016
	29	GROUND LEAD	
	30	GROUND LEAD	
	31	NYLON BINDER	
	32	NYLON RIVET	AEC1160
	33	1 MECHA SW ASSEMBLY	
	34	FRONT PANEL	AMB1746
	35	PACK HOLDER	
	36	HEAT SINK HOLDER B	
	37	HEAT SINK HOLDER A	
	38	PLATE	
	39	PLATE	
	40	HEAT SINK	
	41	SHIELD PLATE (MECHA)	
	42	SHIELD PLATE	
	43	2 MECHA SW ASSEMBLY	
	44	1 MECHA ASSEMBLY	
	45	2 MECHA ASSEMBLY	
⊙	46	AF ASSEMBLY	AWZ3333
	47	VR ASSEMBLY	
	48	HEAD PHONE ASSEMBLY	
	49	1 MECHA UNIT	EXK2020
	50	2 MECHA UNIT	EXK2010
	51	DAMPER ASSEMBLY	AXA1008
	52	SCREW	BPZ26P080FMC
	53	NUT	NK90FUC
	54	SCREW	PCZ30P040FMC
	55	SCREW	VBZ35P080FZK
	56	SCREW	VPZ30P080FMC
⚠	57	FUSE (T1.6A, FU151)	AEK-405
⚠	58	FUSE (T1.6A, FU152)	AEK-405

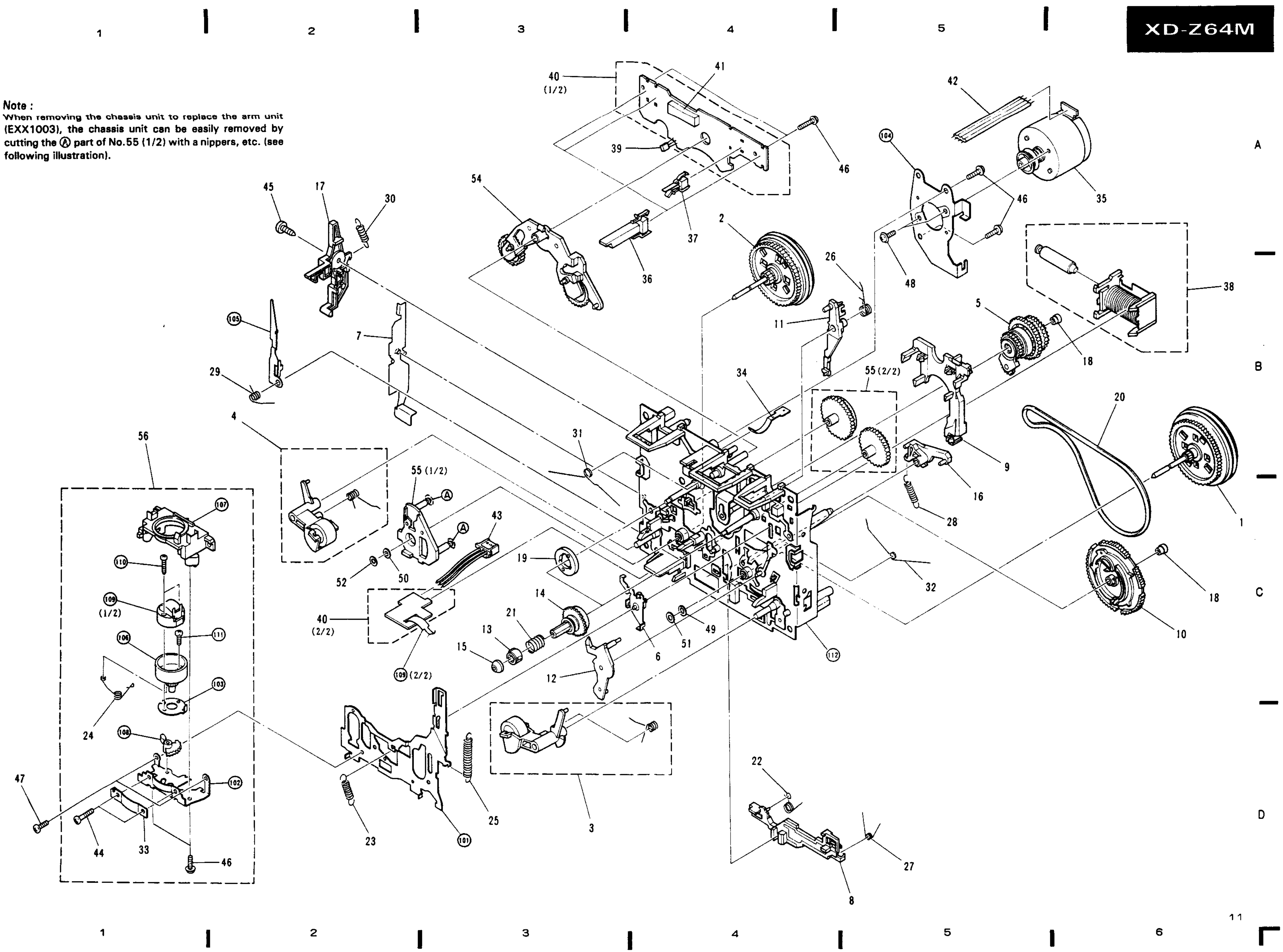

A
B
C
D
Refer to page 9
Refer to page 12

2.4 1 MECHA UNIT (EXK2020)

Parts list of 1 Mecha unit

Mark	No.	Description	Parts No.
	1	FLYWHEEL UNIT (FWD)	EXA1102
	2	FLYWHEEL UNIT (RVS)	EXA1103
	3	ROLLER UNIT (FWD)	EXA1104
	4	ROLLER UNIT (RVS)	EXA1105
	5	LIMITER UNIT	EXA1106
	6	LEVER UNIT	EXA1107
	7	ARM	AZN2063
	8	NR LEVER	ENV1155
	9	BRAKE	ENV1157
	10	CAM GEAR	ENV1158
	11	LOCK ARM	ENV1159
	12	NR ARM	ENV1163
	13	REEL COLLAR	ENV1164
	14	REEL	ENV1170
	15	REEL BUSH	ENV1178
	16	ARM	ENV1181
	17	ARM	AZN2069
	18	BUSH	ENV1184
	19	MAGNET	ENV1185
	20	BELT	ENT1015
	21	SPRING	EBH1201
	22	SPRING	EBH1202
	23	SPRING	EBH1203
	24	SPRING	EBH1204
	25	SPRING	EBH1208
	26	SPRING	EBH1209
	27	SPRING	EBH1210
	28	SPRING	EBH1211
	29	SPRING	EBH1255
	30	SPRING	EBH1213
	31	SPRING	EBH1220
	32	SPRING	EBH1256
	33	SPRING	EBL1013
	34	SPRING	EBL1014
	35	MOTOR UNIT	EXA1108
	36	SWITCH (Detect)	ESN1003
	37	SWITCH (Mode)	ESN1004
	38	SOLENOID	EXP1005
	39	HALL IC	DN6847SE
	40	P.C.BOARD	ENX1002
	41	CONNECTOR	EKS1013
	42	LEAD WIRE	EDD1003
	43	CONNECTOR	EDE1009
	44	SCREW	EBA1020
	45	SCREW	EBA1021
	46	SCREW (M2 × 8)	ATZ20P080FMC
	47	SCREW	BSZ20P050FMC
	48	SCREW	PMS26P025FUC
	49	WASHER	EBF1008
	50	WASHER	EBF1009
	51	WASHER	EBF1010
	52	WASHER	EBF1011
	53	....	
	54	ARM UNIT	EXX1002
	55	ARM UNIT	EXX1003
	56	P HEAD ASSEMBLY	EXX1005
	101	HEAD BASE	
	102	BRACKET	
	103	PLATE	
	104	BRACKET	
	105	ARM	
	106	HOLDER	
	107	HOLDER	
	108	GEAR	
	109	R/P HEAD UNIT	
	110	SCREW	
	111	SCREW	
	112	CHASSIS UNIT	

Note :
When removing the chassis unit to replace the arm unit (EXX1003), the chassis unit can be easily removed by cutting the Ⓐ part of No.55 (1/2) with a nippers, etc. (see following illustration).

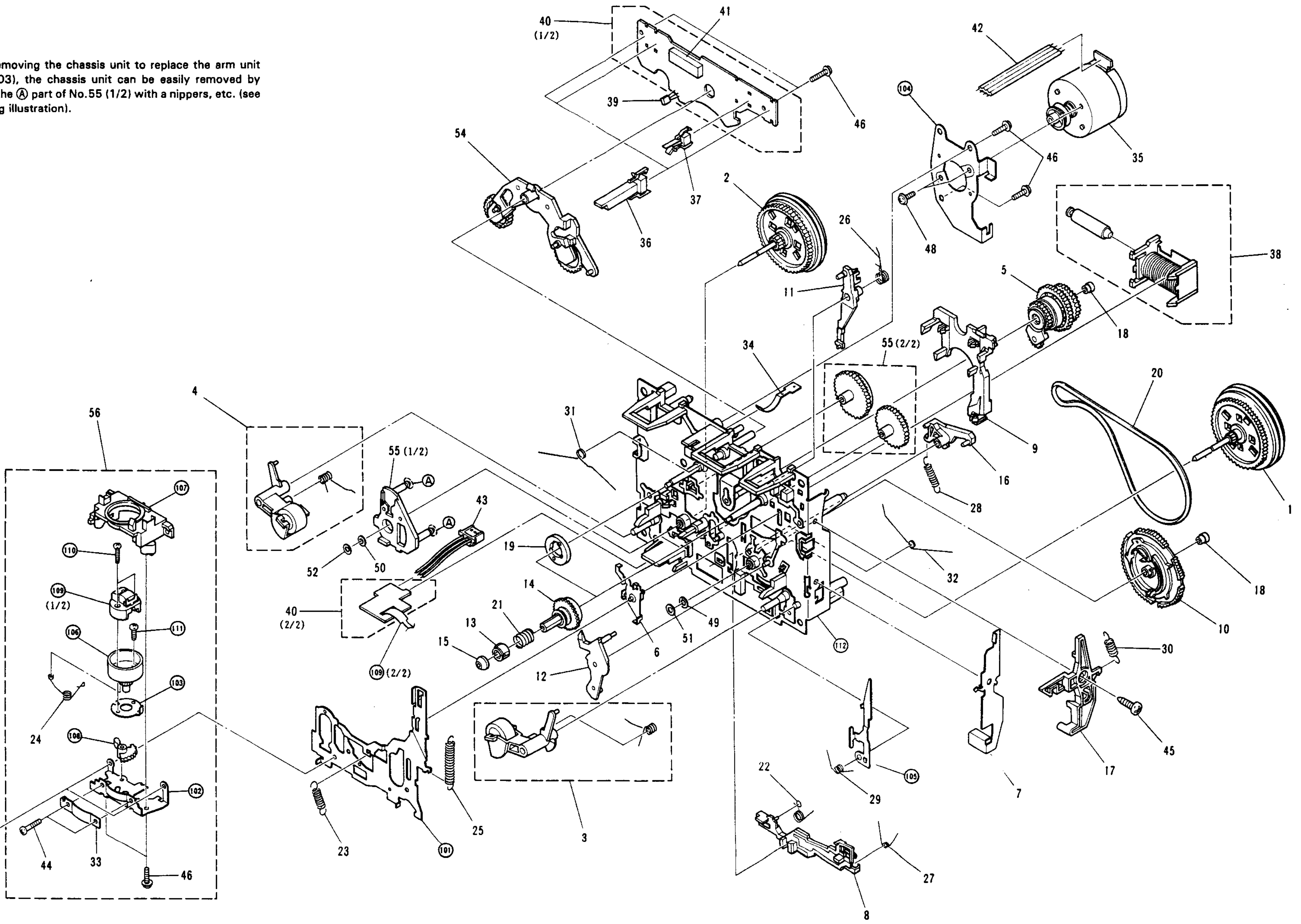

1
2
3
4
5
A
B
C
D
6
40 (1/2)
41
42
39
46
(104)
35
46
54
45
17
30
37
2
36
26
48
38
5
(105)
7
11
18
29
34
55 (2/2)
20
4
56
31
9
55 (1/2)
Ⓐ
Ⓐ
16
(107)
43
28
1
19
(110)
52
50
32
18
(109) (1/2)
14
40 (2/2)
21
13
6
51
49
(111)
15
(112)
10
(106)
(103)
12
(109) (2/2)
24
(108)
22
47
(102)
25
3
44
33
23
(101)
27
46
8

2.5 2 MECHA UNIT (EXK2010)

Parts list of 2 Mecha unit

Mark	No.	Description	Parts No.
	1	FLYWHEEL UNIT (FWD)	EXA1102
	2	FLYWHEEL UNIT (RVS)	EXA1103
	3	ROLLER UNIT (FWD)	EXA1104
	4	ROLLER UNIT (RVS)	EXA1105
	5	LIMITER UNIT	EXA1106
	6	LEVER UNIT	EXA1107
	7	ARM	AZN2064
	8	NR LEVER	ENV1155
	9	BRAKE	ENV1157
	10	CAM GEAR	ENV1158
	11	LOCK ARM	ENV1159
	12	NR ARM	ENV1163
	13	REEL COLLAR	ENV1164
	14	REEL	ENV1170
	15	REEL BUSH	ENV1178
	16	ARM	ENV1181
	17	ARM	AZN2070
	18	BUSH	ENV1184
	19	MAGNET	ENV1185
	20	BELT	ENT1015
	21	SPRING	EBH1201
	22	SPRING	EBH1202
	23	SPRING	EBH1203
	24	SPRING	EBH1204
	25	SPRING	EBH1208
	26	SPRING	EBH1209
	27	SPRING	EBH1210
	28	SPRING	EBH1211
	29	SPRING	EBH1254
	30	SPRING	EBH1213
	31	SPRING	EBH1220
	32	SPRING	EBH1256
	33	SPRING	EBL1013
	34	SPRING	EBL1014
	35	MOTOR UNIT	EXA1108
	36	SWITCH (Detect)	ESN1003
	37	SWITCH (Mode)	ESN1004
	38	SOLENOID	EXP1005
	39	HALL IC	DN6847SE
	40	P.C.BOARD	ENX1002
	41	CONNECTOR	EKS1012
	42	LEAD WIRE	EDD1003
	43	CONNECTOR	EDE1008
	44	SCREW	EBA1020
	45	SCREW	EBA1021
	46	SCREW (M2×8)	ATZ20P080FMC
	47	SCREW	BSZ20P050FMC
	48	SCREW	PMS26P025FUC
	49	WASHER	EBF1008
	50	WASHER	EBF1009
	51	WASHER	EBF1010
	52	WASHER	EBF1011
	53	....	
	54	ARM UNIT	EXX1002
	55	ARM UNIT	EXX1003
	56	R/P HEAD ASSEMBLY	EXX1004
	101	HEAD BASE	
	102	BRACKET	
	103	PLATE	
	104	BRACKET	
	105	ARM	
	106	HOLDER	
	107	HOLDER	
	108	GEAR	
	109	P HEAD UNIT	
	110	SCREW	
	111	SCREW	
	112	CHASSIS UNIT	

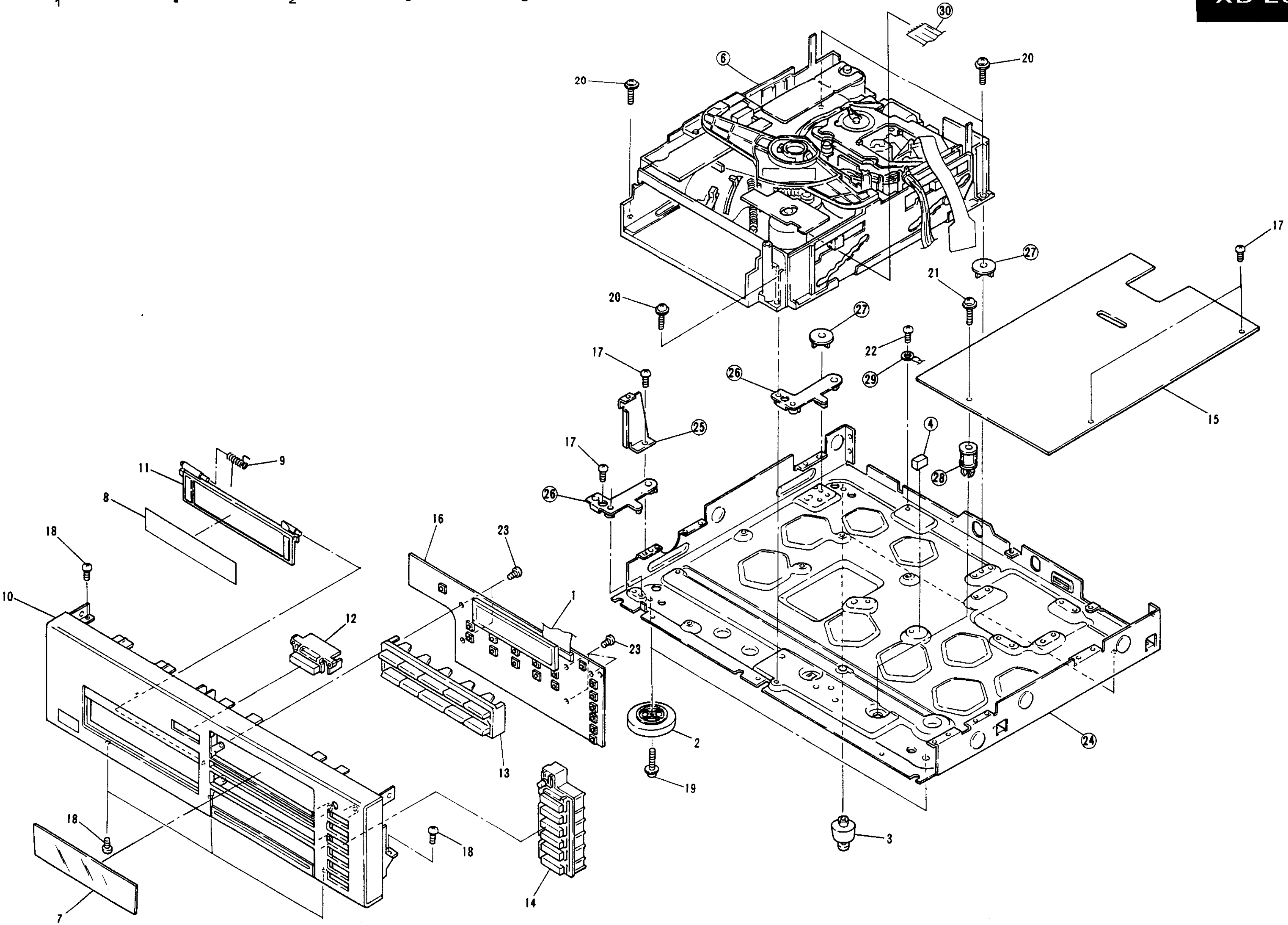
Note :
When removing the chassis unit to replace the arm unit (EXX1003), the chassis unit can be easily removed by cutting the Ⓐ part of No. 55 (1/2) with a nippers, etc. (see following illustration).


1
2
3
4
5
6
A
B
C
D
40 (1/2)
41
42
39
46
54
104
46
35
37
2
36
26
48
38
11
5
18
55 (2/2)
34
20
4
31
9
56
55 (1/2)
Ⓐ
43
Ⓐ
16
1
28
107
52
50
19
32
110
14
18
109 (1/2)
40 (2/2)
21
49
13
51
10
111
15
6
112
106
30
109 (2/2)
12
103
24
45
17
108
3
22
29
105
7
47
102
25
23
44
33
46
101
27
8

2.6 CD BLOCK

Parts list of CD block

Mark	No.	Description	Parts No.
	1	FLEXIBLE CABLE (25P)	PDD1067
	2	INSULATOR ASSEMBLY	PXA1343
	3	LEG ASSEMBLY	PXA1201
	4	SPACER	
	5	……………	……………
	6	MULTI MECHANISM ASSEMBLY	
	7	DISPLAY WINDOW	PAM1458
	8	DOOR NAME PLATE	PAM1461
	9	DOOR SPRING	PBH1022
	10	FUNCTION PANEL	PNW1890
	11	DOOR (BK)	PNW1894
	12	EJECT BUTTON	PAC1533
	13	FUNCTION BUTTON	PAC1535
	14	DISC BUTTON	PAC1538
⊙	15	MOTHER PCB ASSEMBLY	PWM1372
⊙	16	SUB PCB ASSEMBLY	PWX1148
	17	SCREW	BBZ30P060FMC
	18	SCREW	BBZ30P080FZK
	19	SCREW	IBZ30P100FCC
	20	SCREW	IBZ30P135FMC
	21	SCREW	IBZ30P150FCC
	22	SCREW	PDZ30P050FMC
	23	SCREW	PPZ30P100FMC
	24	UNDER BASE	
	25	ANGLE	
	26	MECHANISM BASE (A)	
	27	MECHANISM BASE (B)	
	28	PCB SPACER	
	29	GROUND LEAD	
	30	FLEXIBLE CABLE	


㉚
⑥
㉗
㉗
㉙
㉖
㉕
④
㉘
㉖
㉔

2.7 CD MECHA UNIT

NOTES:

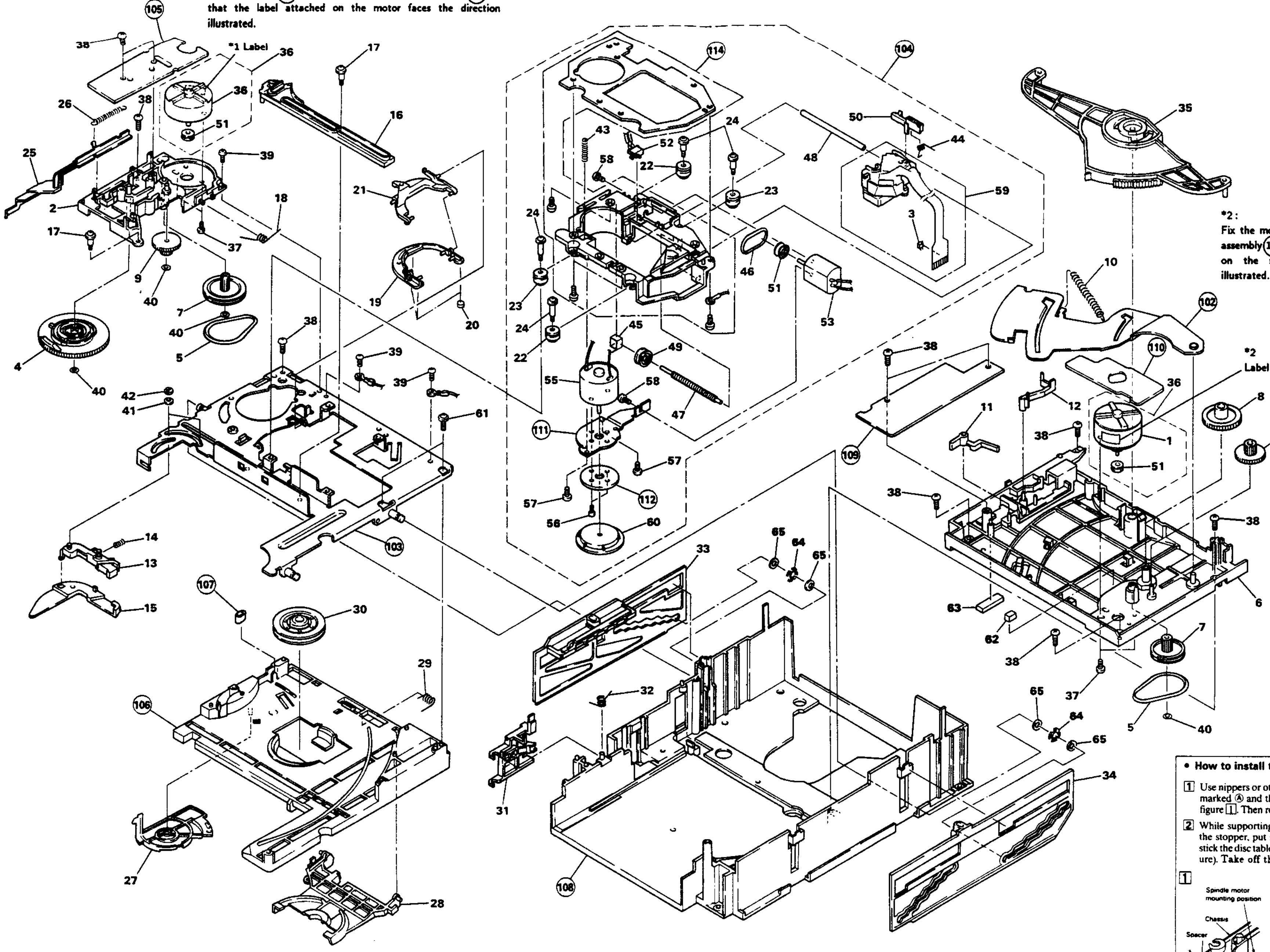
- *Parts without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- *Parts marked by "●" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

Parts list of CD mecha unit

Mark	No.	Part No.	Description
	1	PEA1130	Motor assembly(select)
	2	PNW1929	Gear holder
	3	PCP1008	Potentiometer
	4	PNW1923	Cam gear
	5	PEB1138	Belt
	6	PNW1914	Top guide
	7	PNW1918	Gear pulley
	8	PNW1919	Gear(S)
	9	PNW1920	Gear(L)
	10	PBH1107	Eject spring
	11	PNW1927	Switch lever
	12	PNW1931	Seven bar
	13	PNW1933	Sub rotary lever
	14	PBH1111	Sub rotary lever spring
	15	PNW1932	Rotary lever
	16	PNW1930	Drive plate
	17	PBA-112	Screw
	18	PBH1110	Holder lever spring
	19	PNW1924	Disk holder
	20	PED1001	Cusion(A)
	21	PNW1925	Holder lever
	22	PEB1014	Float rubber
	23	PEB1132	Float rubber
	24	PBA1055	Float screw
	25	PNW1934	Release lever
	26	PBH1106	Release spring
	27	PNW1922	Clamper cam
	28	PNW1921	Clamper holder
	29	PBH1109	Clamper spring
	30	PNW1857	Clamper
	31	PNW1917	Lock lever
	32	PBH1108	Lock spring
	33	PNW1915	Stair(L)
	34	PNW1916	Stair(R)
	35	PNW1926	Synchronize lever
	36	PEA1130	Motor assembly(Loading)
	37	PMZ26P040FMC	Screw
	38	PPZ30P080FMC	Screw
	39	BBZ30P060FMC	Screw
	40	WT26D047D025	Washer
	41	WA31D054D025	Washer
	42	YE25FUC	E ring
	43	PBH1009	Earth spring
	44	PBH1084	Drive spring
	45	PBK1057	Plate spring
	46	PEB1072	Belt
	47	PLA1003	Drive screw
	48	PLA1071	Guide bar
	49	PNW1066	Pulley
	50	PNW1605	Half nut
	51	PNW1634	Motor pulley
	52	DSG1014	Slide switch
	53	PXM1013	DC motor / 1.7W(carriage)
	54	PBZ30P080FMC	Screw
	55	PEA1028	DC motor assembly(spindle)
	56	JFZ20P040FMC	Screw
	57	BPZ20P080FZK	Screw
	58	PMZ20P030FMC	Screw
	59	PEA1030	Pick up assembly
	60	PEA1035	Disc table
	61	IPZ30P080FMC	Scerw
	62	PEB1178	Spacer
	63	PEB1179	Spacer
	64	PBK1093	Plate spring
	65	WA62D130D025	Washer
	101		Motor
	102		Eject lever
	103		Upper chassis
	104		Servo mechanism assembly
	105		Mechanism board assembly
	106		Sub chassis
	107		Rubber tube
	108		Main chassis
	109		Select board assembly
	110		Motor board assembly
	111		Motor base
	112		York(M)
	113		Disc table
	114		Mechanism assembly T
	115		Mechanism chassis
	116		Table ring

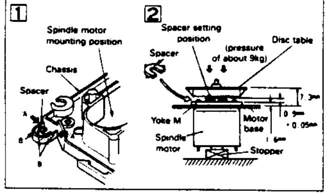
*1 :
Fix the motor (101) on the mechanism board assembly (105) so that the label attached on the motor faces the direction illustrated.

*2 :
Fix the motor (101) on the motor board assembly (110) so that the label attached on the motor faces the direction illustrated.


*1 Label
*2 Label
(105)
(114)
(104)
(102)
(110)
(109)
(111)
(112)
(103)
(107)
(106)
(108)
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
55
56
57
58
59
60
61
62
63
64
65

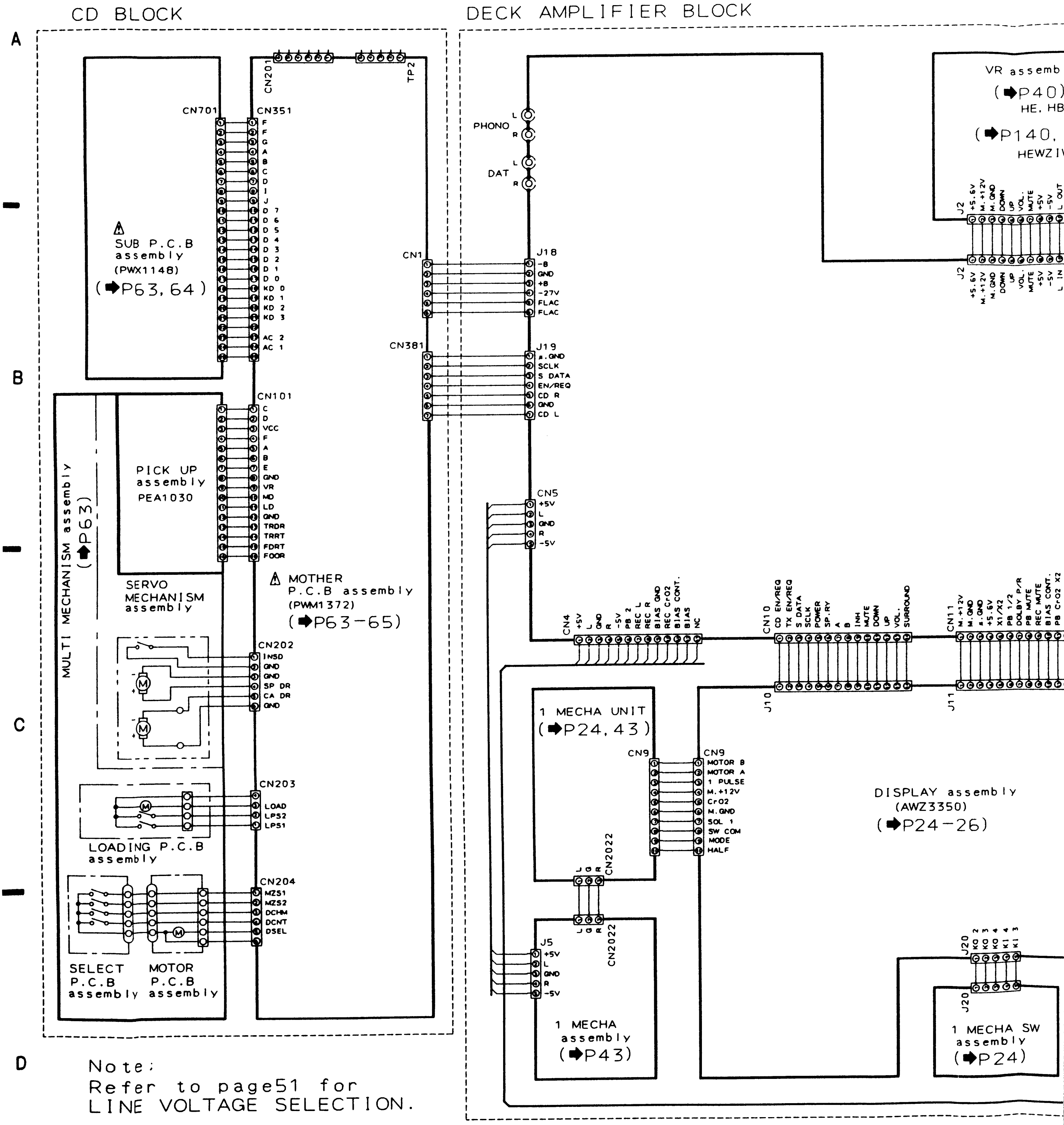
• How to install the disc table

1. Use nippers or other tool to cut the two sections marked Ⓐ and the three sections marked Ⓑ in figure 1. Then remove the spacer.
2. While supporting the spindle motor shaft with the stopper, put spacer on top of yoke M, and stick the disc table on top (takes about 9kg pressure). Take off the spacer.


1
Spindle motor mounting position
Chassis
Spacer
A
B
2
Spacer setting position
Disc table
(pressure of about 9kg)
Spacer
Yoke M
Motor base
Spindle motor
Stopper
7.3mm
0.9mm
+0.05mm
1.6mm

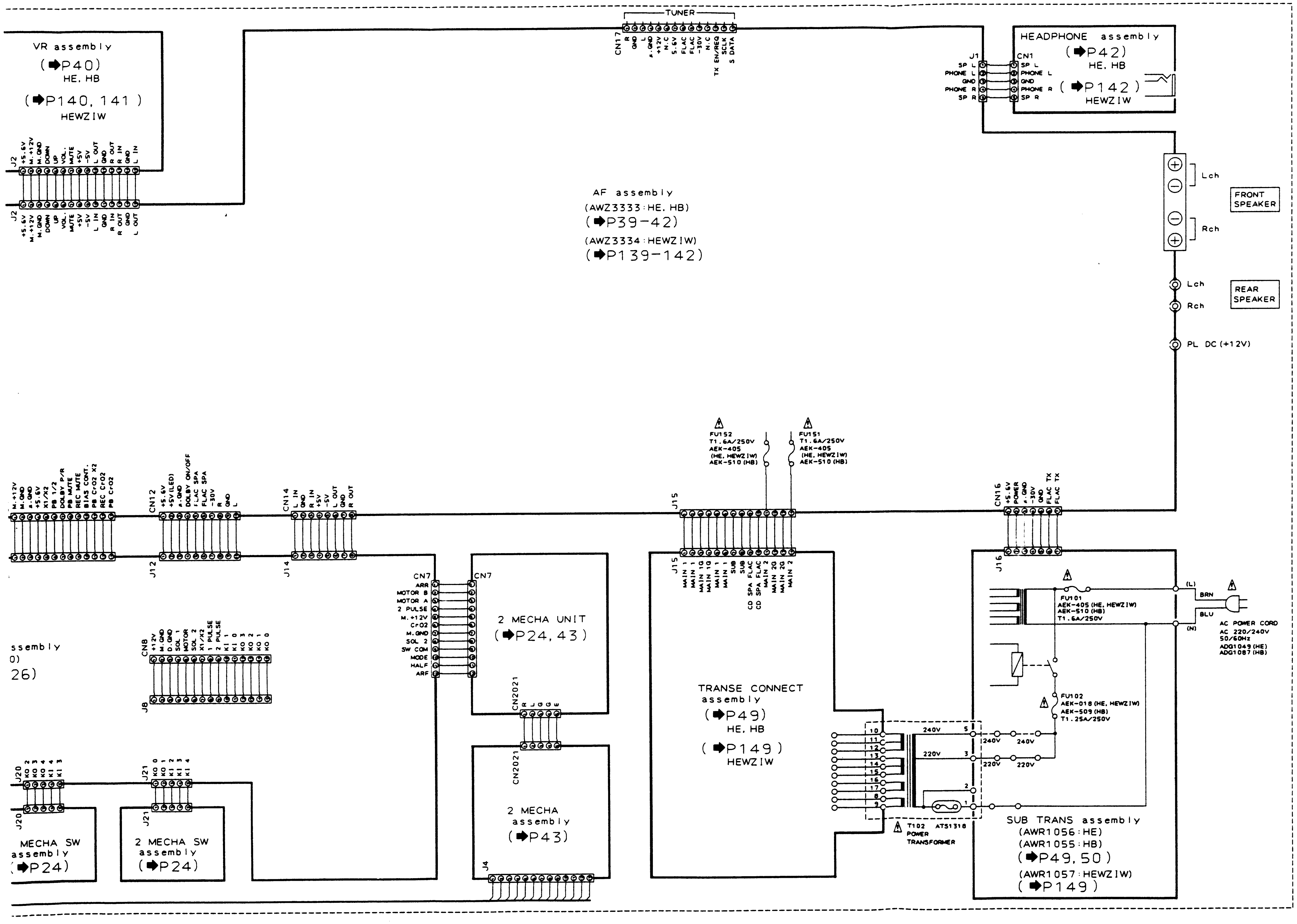
3. SCHEMATIC DIAGRAM AND P.C.BOARDS CONNECTION DIAGRAM

3.1 OVER ALL SCHEMATIC DIAGRAM


A
B
C
D
CD BLOCK
DECK AMPLIFIER BLOCK
CN201
TP2
CN701
CN351
F F G A B C D I J D 7 D 6 D 5 D 4 D 3 D 2 D 1 D 0 KD 0 KD 1 KD 2 KD 3 AC 2 AC 1
SUB P.C.B assembly (PWX1148) (➡P63, 64)
CN1
CN381
CN101
C D VCC F A B E GND VR MD LD GND TRDR TRRT FDRT FODR
PICK UP assembly PEA1030
SERVO MECHANISM assembly
MULTI MECHANISM assembly (⬆P63)
MOTHER P.C.B assembly (PWM1372) (➡P63-65)
CN202
INSD GND GND SP DR CA DR GND
CN203
LOAD LPS2 LPS1
LOADING P.C.B assembly
CN204
MZS1 MZS2 DCHM DCNT DSEL
SELECT P.C.B assembly
MOTOR P.C.B assembly
PHONO L R
DAT L R
J18
-B GND +B -27V FLAC FLAC
J19
a.GND SCLK S DATA EN/REQ CD R GND CD L
CN5
+5V L GND R -5V
VR assemb
(➡P40)
HE, HB
(➡P140,
HEWZ
J2
+5.6V M.+12V M.GND DOWN UP VOL. MUTE +5V -5V L OUT
J2
+5.6V M.+12V M.GND DOWN UP VOL. MUTE +5V -5V L IN
CN4
+5V L GND R -5V PB 2 REC L REC R BIAS GND REC CrO2 BIAS CONT. BIAS NC
CN10
CD EN/REQ TX EN/REQ S DATA SCLK POWER SP.RY A B INH MUTE DOWN UP VOL. SURROUND
J10
CN11
M.+12V M.GND a.GND +5.6V X1/X2 PB 1/2 DOLBY P/R PB MUTE REC MUTE BIAS CONT. PB CrO2 X2
J11
1 MECHA UNIT (➡P24, 43)
CN9
CN9
MOTOR B MOTOR A 1 PULSE M.+12V CrO2 M.GND SOL 1 SW COM MODE HALF
CN2022
L G R
L G R
CN2022
J5
+5V L GND R -5V
1 MECHA assembly (➡P43)
DISPLAY assembly (AWZ3350) (➡P24-26)
J20
KO 2 KO 3 KO 4 KI 4 KI 3
J20
1 MECHA SW assembly (➡P24)

Note:
Refer to page51 for
LINE VOLTAGE SELECTION.

AM


TUNER
CN17
VR assembly
(➡P40)
HE, HB
(➡P140, 141)
HEWZIW
J2
HEADPHONE assembly
(➡P42)
HE, HB
(➡P142)
HEWZIW
J1
CN1
SP L
PHONE L
GND
PHONE R
SP R
AF assembly
(AWZ3333:HE, HB)
(➡P39-42)
(AWZ3334:HEWZIW)
(➡P139-142)
Lch
Rch
FRONT SPEAKER
REAR SPEAKER
PL DC (+12V)
FU152
T1.6A/250V
AEK-405
(HE, HEWZIW)
AEK-510 (HB)
FU151
T1.6A/250V
AEK-405
(HE, HEWZIW)
AEK-510 (HB)
CN12
J12
CN14
J14
J15
CN16
J16
CN7
ARR
MOTOR B
MOTOR A
2 PULSE
M.+12V
CrO2
M.GND
SOL 2
SW COM
MODE
HALF
ARF
2 MECHA UNIT
(➡P24, 43)
CN2021
2 MECHA
assembly
(➡P43)
J4
ssembly
0)
26)
CN8
J8
J20
J21
MECHA SW
assembly
(➡P24)
2 MECHA SW
assembly
(➡P24)
TRANSE CONNECT
assembly
(➡P49)
HE, HB
(➡P149)
HEWZIW
FU101
AEK-405 (HE, HEWZIW)
AEK-510 (HB)
T1.6A/250V
FU102
AEK-016 (HE, HEWZIW)
AEK-509 (HB)
T1.25A/250V
(L)
BRN
BLU
(N)
AC POWER CORD
AC 220/240V
50/60Hz
ADG1049 (HE)
ADG1087 (HB)
240V
220V
T102 ATS1316
POWER
TRANSFORMER
SUB TRANS assembly
(AWR1056:HE)
(AWR1055:HB)
(➡P49, 50)
(AWR1057:HEWZIW)
(➡P149)

1. RESISTORS:
   Indicated in Ω, ¼W, ⅛W, ±5% tolerance unless otherwise noted k : kΩ, M : MΩ, (F) : ±1%, (G) : ±2%, (K) : ±10% (M); ±20% tolerance
2. CAPACITORS:
   Indicated in capacity (μF)/voltage (V) unless otherwise noted p : pF
   Indication without voltage is 50V except electrolytic capacitor.
3. VOLTAGE, CURRENT:
   ▭ : Signal voltage at (33W + 33W 8Ω)output (1kHz)
   ▭ : DC voltage (V) at no input signal
   Value in ( ) is DC voltage at rated power.
   ⇦ mA : DC current at no input signal
4. OTHERS:
   ➡ : Signal route.
   ⊘ : Adjusting point.
   The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
   ※ marked capacitors and resistors have parts numbers.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

SWITCHES:

DISPLAY assembly	
S1504	POWER
S1505	VIDEO
S1507	FADE/FINE
S1510	AI MEMO
S1511	AI BGM
S1512	PHONO
S1513	2 REC MUTE
S1514	DISCO
S1516	SURR
S1517	TAPE
S1518	2 REC
S1519	X2 COPY
S1522	CD
S1523	TX
S1524	2 PAUSE
S1525	X1 COPY
S1528	DOLBY NR ON/OFF

1 MECH SW assembly	
S1551	1 REV
S1552	1 PLAY
S1553	1 STOP
S1554	1 REW
S1555	1 FF

2 MECH SW assembly	
S1556	2 STOP
S1557	2 REV
S1558	2 PLAY
S1559	2 REW
S1560	2 FF

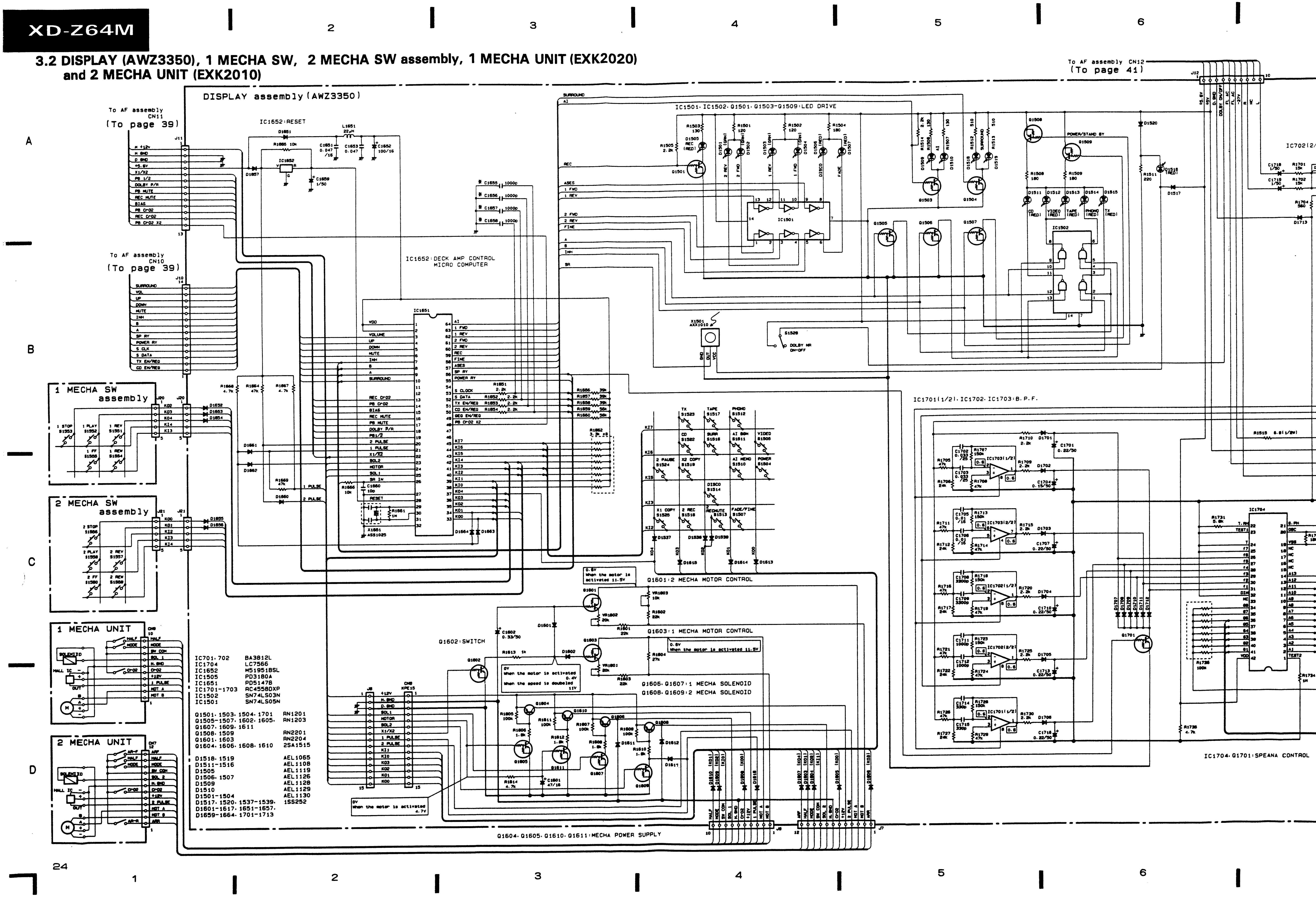
A

B

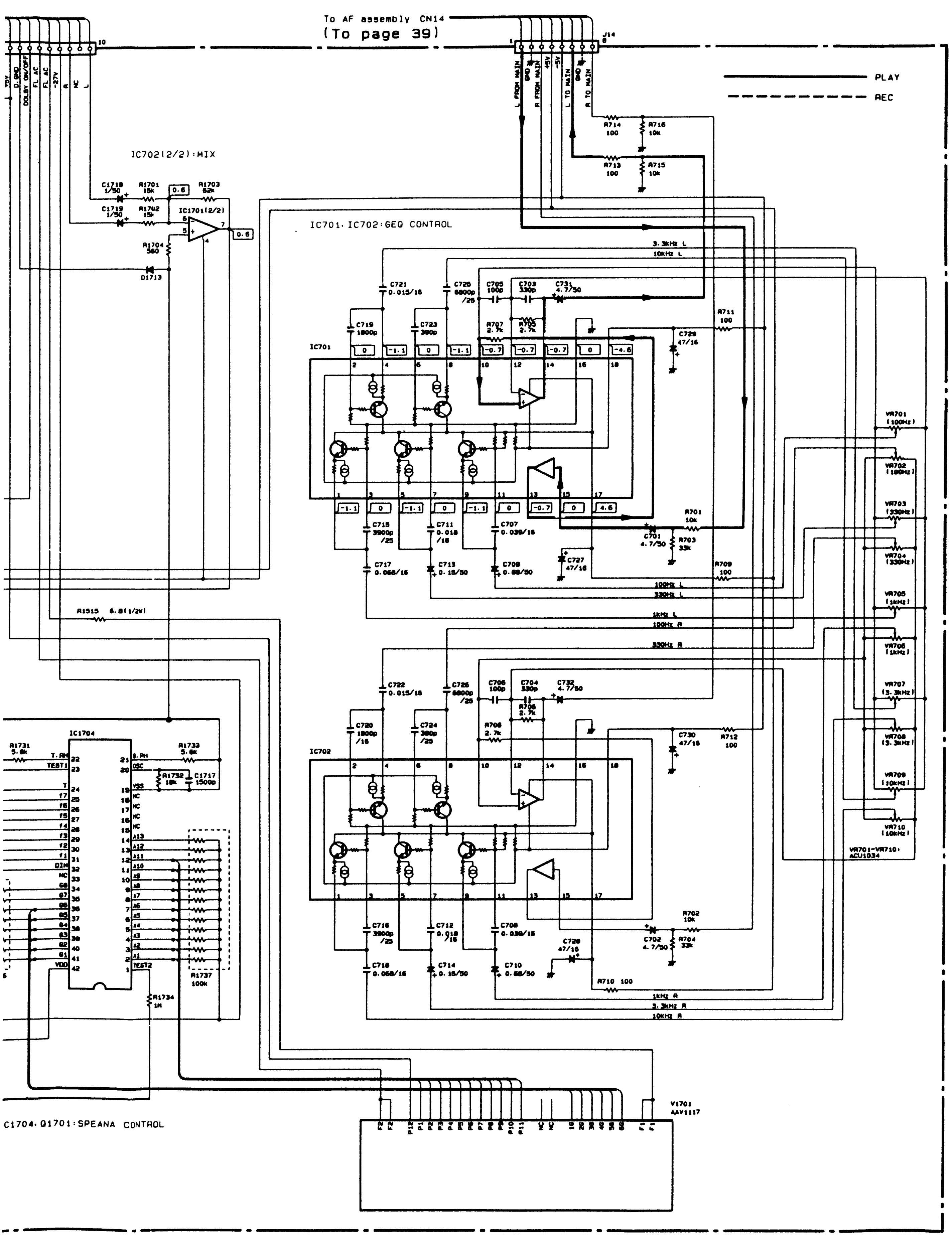
C

D

3.2 DISPLAY (AWZ3350), 1 MECHA SW, 2 MECHA SW assembly, 1 MECHA UNIT (EXK2020) and 2 MECHA UNIT (EXK2010)

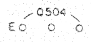
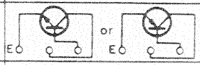
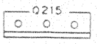
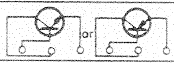
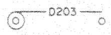
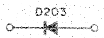
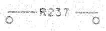
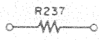
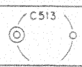
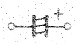
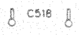
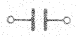

1
2
3
4
5
6
A
B
C
D
DISPLAY assembly (AWZ3350)
To AF assembly CN11 (To page 39)
To AF assembly CN10 (To page 39)
To AF assembly CN12 (To page 41)
J11
J10
J12
IC1652:RESET
IC1652:DECK AMP CONTROL MICRO COMPUTER
IC1651
IC1501, IC1502, Q1501, Q1503-Q1509:LED DRIVE
IC1501
IC1502
X1501 AXX1010
S1520 DOLBY NR ON-OFF
POWER/STAND BY
IC1701(1/2), IC1702, IC1703:B.P.F.
IC1704, Q1701:SPEANA CONTROL
IC1704
1 MECHA SW assembly
2 MECHA SW assembly
1 MECHA UNIT
2 MECHA UNIT
Q1601:2 MECHA MOTOR CONTROL
Q1603:1 MECHA MOTOR CONTROL
Q1602:SWITCH
Q1606, Q1607:1 MECHA SOLENOID
Q1608, Q1609:2 MECHA SOLENOID
Q1604, Q1605, Q1610, Q1611:MECHA POWER SUPPLY
0.6V When the motor is activated 11.5V
0.6V When the motor is activated 11.5V
0V When the motor is activated 0.4V When the speed is doubled 11V
0V When the motor is activated 4.7V
X1651 ASS1025
J8
J7
CN8
CN7
CN9

IC701, 702	BA3812L
IC1704	LC7566
IC1652	M51951BSL
IC1505	PD3180A
IC1651	PD5147B
IC1701-1703	RC4558DXP
IC1502	SN74LS03N
IC1501	SN74LS05N
Q1501, 1503, 1504, 1701	RN1201
Q1505-1507, 1602, 1605, Q1607, 1609, 1611	RN1203
Q1508, 1509	RN2201
Q1601, 1603	RN2204
Q1604, 1606, 1608, 1610	2SA1515
D1518, 1519	AEL1065
D1511-1516	AEL1108
D1505	AEL1119
D1506, 1507	AEL1126
D1509	AEL1128
D1510	AEL1129
D1501-1504	AEL1130
D1517, 1520, 1537-1539, D1601-1617, 1651-1657, D1659-1664, 1701-1713	1SS252


To AF assembly CN14
(To page 39)
J14
+5V
D.GND
DOLBY ON/OFF
FL AC
FL AC
-27V
R
NC
L
L FROM MAIN
GND
R FROM MAIN
+5V
-5V
L TO MAIN
GND
R TO MAIN
PLAY
REC
IC702(2/2):MIX
C1718 1/50
C1719 1/50
R1701 15k
R1702 15k
R1703 62k
R1704 560
D1713
IC1701(2/2)
0.6
0.6
IC701·IC702:GEQ CONTROL
R714 100
R716 10k
R713 100
R715 10k
3.3kHz L
10kHz L
C721 0.015/16
C725 6800p /25
C705 100p
C703 330p
C731 4.7/50
C719 1800p
C723 390p
R707 2.7k
R705 2.7k
R711 100
C729 47/16
IC701
0
-1.1
0
-1.1
-0.7
-0.7
-0.7
0
-4.6
-1.1
0
-1.1
0
-1.1
0
-0.7
0
4.6
C715 3900p /25
C711 0.018 /16
C707 0.039/16
C717 0.068/16
C713 0.15/50
C709 0.68/50
C727 47/16
C701 4.7/50
R701 10k
R703 33k
R709 100
100Hz L
330Hz L
1kHz L
100Hz R
330Hz R
R1515 6.8(1/2W)
VR701 (100Hz)
VR702 (100Hz)
VR703 (330Hz)
VR704 (330Hz)
VR705 (1kHz)
VR706 (1kHz)
VR707 (3.3kHz)
VR708 (3.3kHz)
VR709 (10kHz)
VR710 (10kHz)
VR701-VR710: ACU1034
IC1704
R1731 5.6k
R1733 5.6k
R1732 18k
C1717 1500p
T.R
TEST1
T
f7
f6
f5
f4
f3
f2
f1
DIM
NC
G8
G7
G6
G5
G4
G3
G2
G1
VDD
S.PH
OSC
VSS
NC
NC
NC
A13
A12
A11
A10
A9
A8
A7
A6
A5
A4
A3
A1
TEST2
R1737 100k
R1734 1M
C722 0.015/16
C726 6800p /25
C706 100p
C704 330p
C732 4.7/50
C720 1800p /16
C724 390p /25
R706 2.7k
R708 2.7k
C730 47/16
R712 100
IC702
C716 3900p /25
C712 0.018 /16
C708 0.039/16
C718 0.068/16
C714 0.15/50
C710 0.68/50
C728 47/16
C702 4.7/50
R702 10k
R704 33k
R710 100
1kHz R
3.3kHz R
10kHz R
V1701 AAV1117
F2 F2 P12 P1 P2 P3 P4 P5 P6 P7 P8 P9 P10 P11 NC NC 1G 2G 3G 4G 5G 6G F1 F1
C1704·Q1701:SPEANA CONTROL
A
B
C
D

NOTE

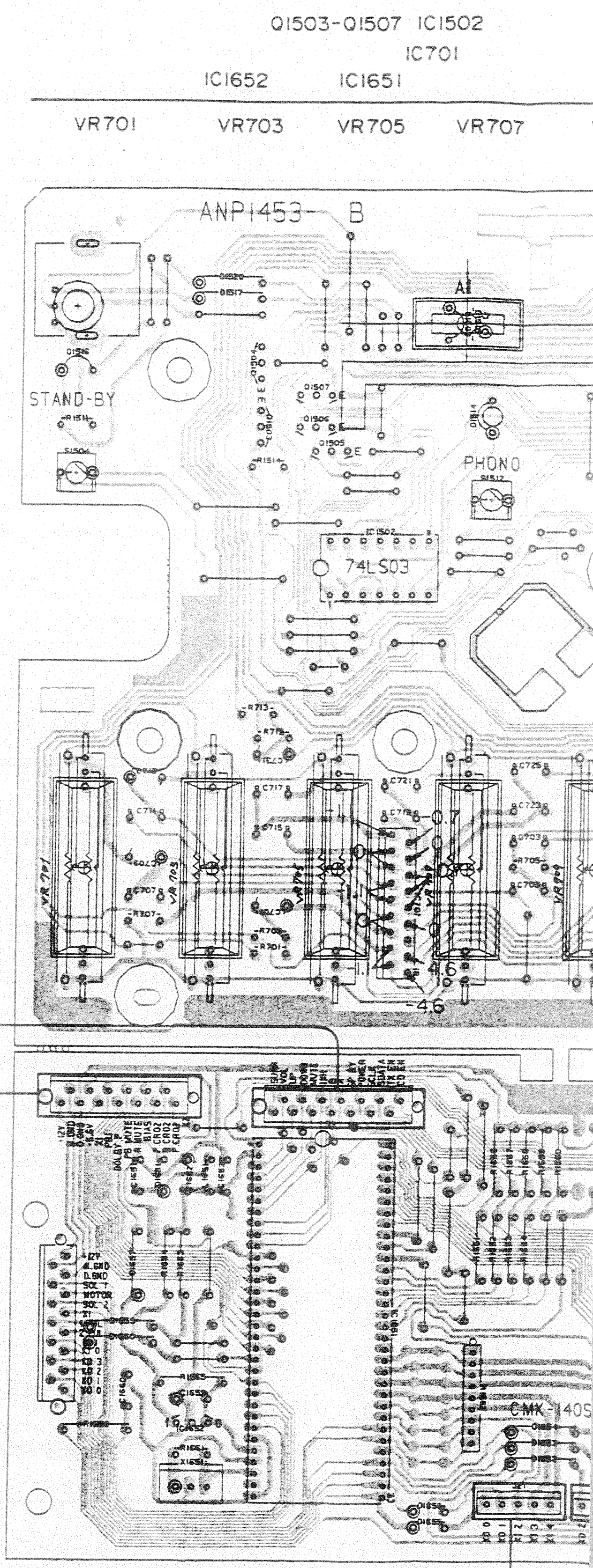
1. This P.C.B connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the following Table.

P.C.B. pattern diagram indication	Corresponding part symbol	Part Name
		Transistor
		Radiator type transistor
		Diode
		Resistor
		Capacitor (Polarity)
		Capacitor (Non-polarity)

Others

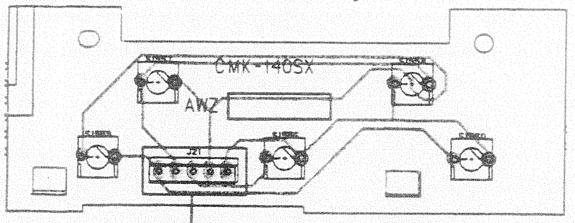
P.C.B. pattern diagram indication	Part Name
IC	IC
S	Switch
RY	Relay
L	Coil
F	Filter
VR	Variable resistor or Semi-fixed resistor

3. The capactor terminal marked with ◎ (double circles) shows negatine termianl.
4. The diode terminal marked with ◎ (double circles) shows cathode side.
5. The transistor terminal to which E is affixed shows the emitter.

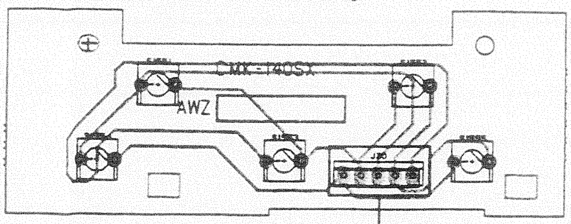

Q1503-Q1507
IC1502
IC701
IC1652
IC1651
VR701
VR703
VR705
VR707
ANP1453- B
STAND-BY
PHONO
74LS03
CMK-140S

To AF assembly CN10
(To page 37)

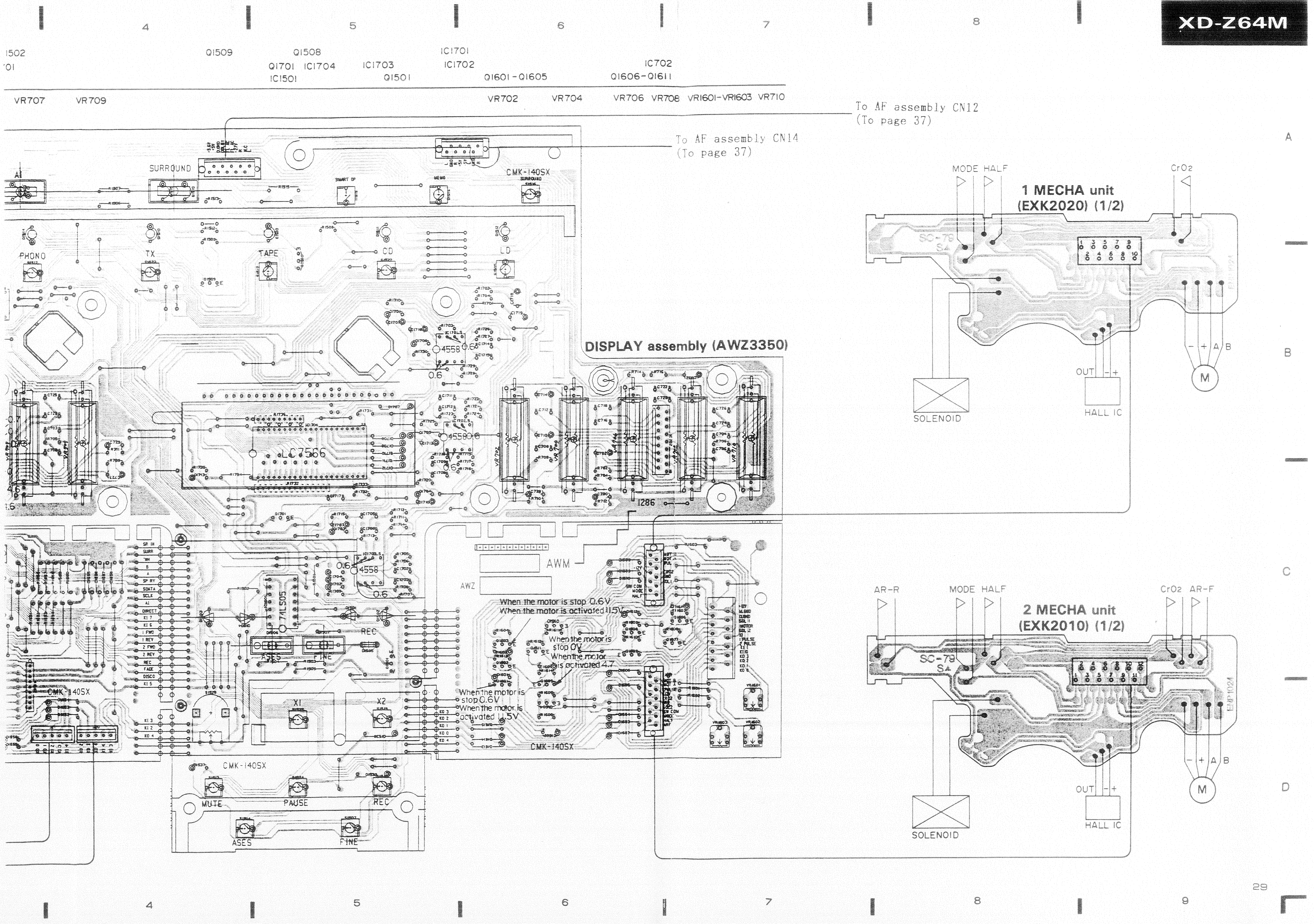
2 MECHA SW assembly

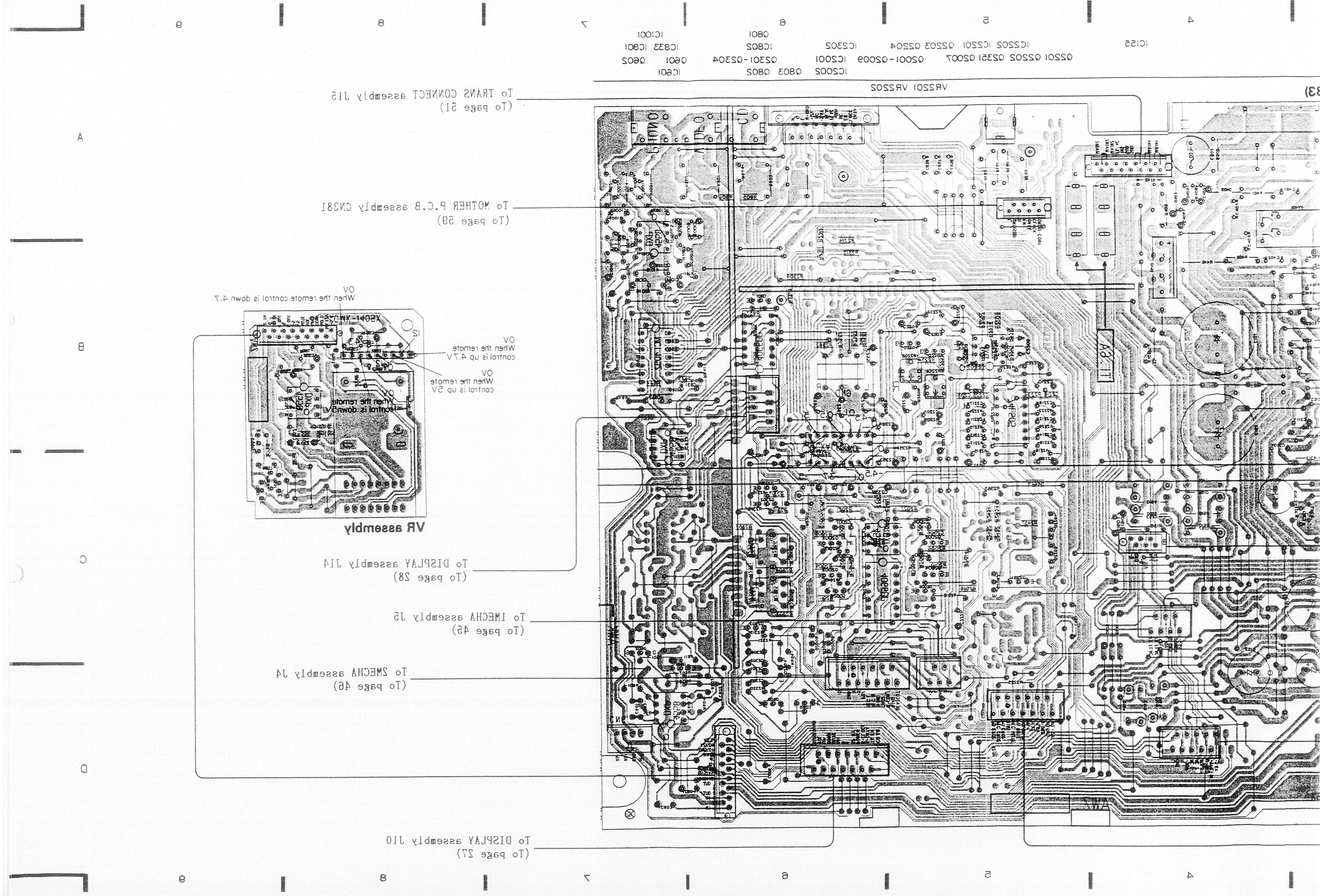

CMK-140SX
AWZ

1 MECHA SW assembly


CMK-140SX
AWZ

To AF assembly CN11
(To page 37)

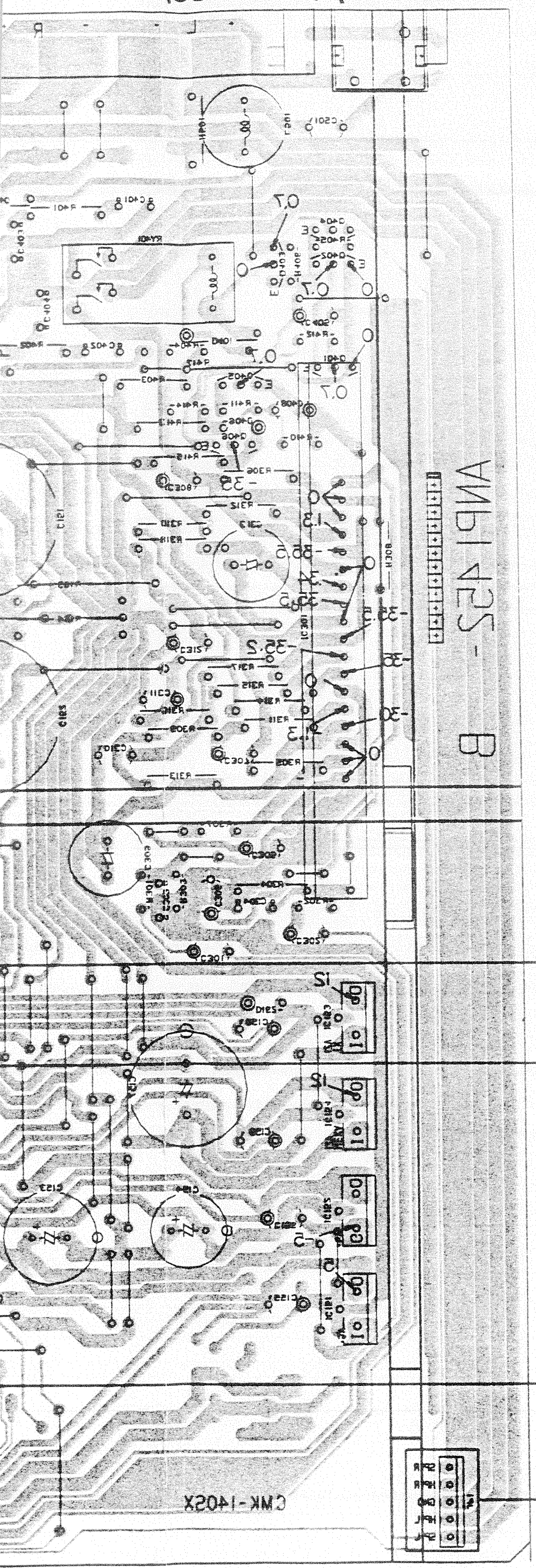

4
5
6
7
8
Q1502
Q1701
Q1509
Q1508
Q1701 IC1704
IC1501
IC1703
Q1501
IC1701
IC1702
Q1601-Q1605
IC702
Q1606-Q1611
VR707
VR709
VR702
VR704
VR706 VR708 VR1601-VR1603 VR710
To AF assembly CN12
(To page 37)
To AF assembly CN14
(To page 37)
SURROUND
SMART OP
MEMO
CMK-140SX
PHONO
TX
TAPE
CD
LD
DISPLAY assembly (AWZ3350)
4558
0.6
LC7566
I286
AWM
AWZ
74LS05
REC
ASES
FINE
X1
X2
When the motor is stop 0.6V
When the motor is activated 11.5V
When the motor is stop 0V
When the motor is activated 4.7
When the motor is stop 0.6V
When the motor is activated 11.5V
CMK-140SX
MUTE
PAUSE
REC
ASES
FINE
MODE HALF
CrO2
1 MECHA unit
(EXK2020) (1/2)
SC-79
SA
OUT
- +
- + A B
M
SOLENOID
HALL IC
AR-R
MODE HALF
CrO2 AR-F
2 MECHA unit
(EXK2010) (1/2)
SC-79
SA
OUT
- +
- + A B
M
SOLENOID
HALL IC
A
B
C
D
4
5
6
7
8
9


IC1001
IC833 IC801
Q602 Q601
IC601
Q801
IC802
Q2301-Q2304
Q802 Q803
IC2302
IC2001
IC2002
Q2001-Q2009
Q2204 Q2203 IC2201 IC2202
Q2201 Q2202 Q2351 Q2007
IC155
VR2201 VR2202
To TRANS CONNECT assembly J15
(To page 51)
To MOTHER P.C.B assembly CN381
(To page 59)
0V
When the remote control is down 4.7
CWK-1405X
0V
When the remote control is up 4.7V
0V
When the remote control is up 5V
When the remote control is down 0V
VR assembly
To DISPLAY assembly J14
(To page 28)
To IMECHA assembly J5
(To page 45)
To 2MECHA assembly J4
(To page 46)
To DISPLAY assembly J10
(To page 27)
PHONO
VIDEO
CD
A
B
C
D
9
8
7
6
5
4

3 2

Q401-Q406
IC301
IC153 IC154
IC152 IC151

AF assembly (AWZ3333)

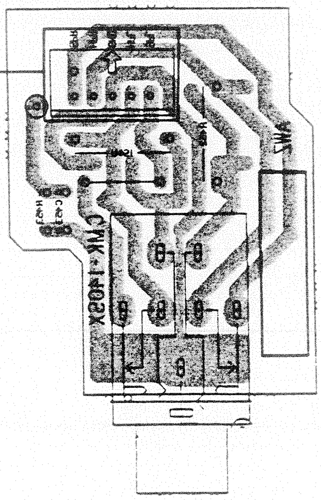

ANP-1452-B
CMK-140SX
IC301
RY401
SPR
HPR
GND
HPL
SPL

To MOTHER PCB assembly
CN1 (To page 59)

To SUB TRANS assembly CN16
(To page 52)

To DISPLAY assembly J12
(To page 28)

HEAD PHONE assembly



To DISPLAY assembly J11
(To page 27)

3 2 1

3.3 AF (AWZ3333), HEAD PHONE and VR assembly

Q401-Q406
IC301
IC153 IC154
IC152 IC151

IC155

IC2202 IC2201 Q2203 Q2204
Q2201 Q2202 Q2351 Q2007

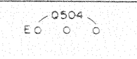
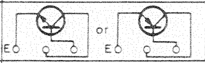
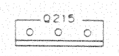
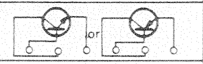
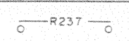
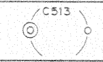
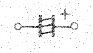
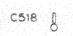
IC2302
Q2001-Q2009 IC2001
IC2002

Q801
IC802
Q2301-Q2304
Q803 Q802

IC1001
IC833 IC801
Q601 Q602
IC601

NOTE

1. This P.C.B connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the following Table.

P.C.B. pattern diagram indication	Corresponding part symbol	Part Name
		Transistor
		Radiator type transistor
		Diode
		Resistor
		Capacitor (Polarity)
		Capacitor (Non-polarity)

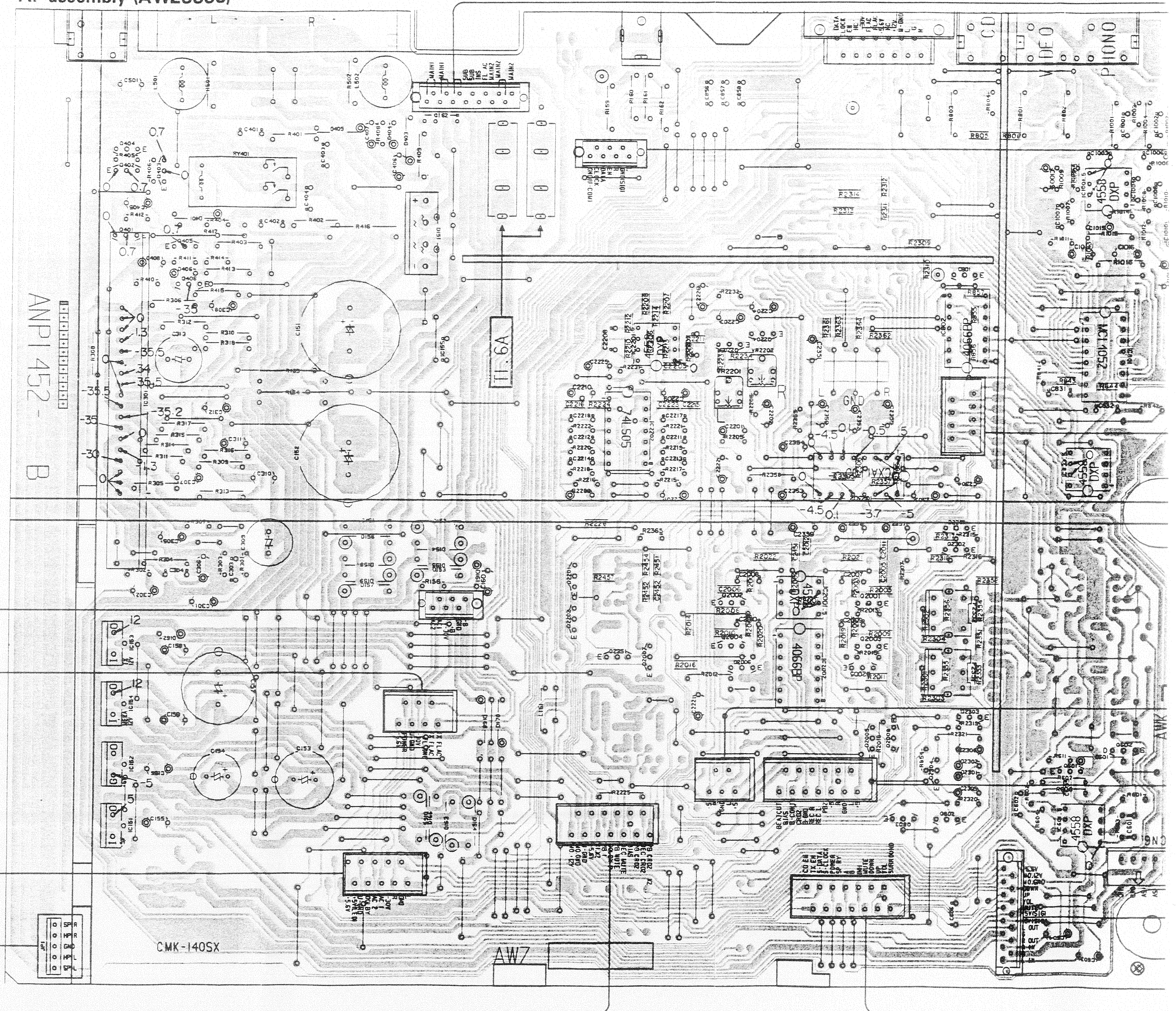
Others

P.C.B. pattern diagram indication	Part Name
IC	IC
S	Switch
RY	Relay
L	Coil
F	Filter
VR	Variable resistor or Semi-fixed resistor

3. The capactor terminal marked with ◎(double circles) shows negatine termianl.
4. The diode terminal marked with ◎(double circles) shows cathode side.
5. The transistor terminal to which E is affixed shows the emitter.

AF assembly (AWZ3333)

VR2201 VR2202

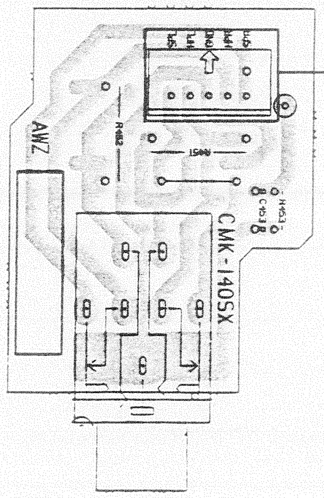

L
R
CD
VIDEO
PHONO
ANP1452-B
11.6A
41S05
4066BP
MC14052
4558 DXP
GND
CMK-140SX
AWZ
SP R
HP R
GND
HP L
SP L

To MOTHER PCB assembly
CN1 (To page 59)

To SUB TRANS assembly CN16
(To page 52)

To DISPLAY assembly J12
(To page 28)

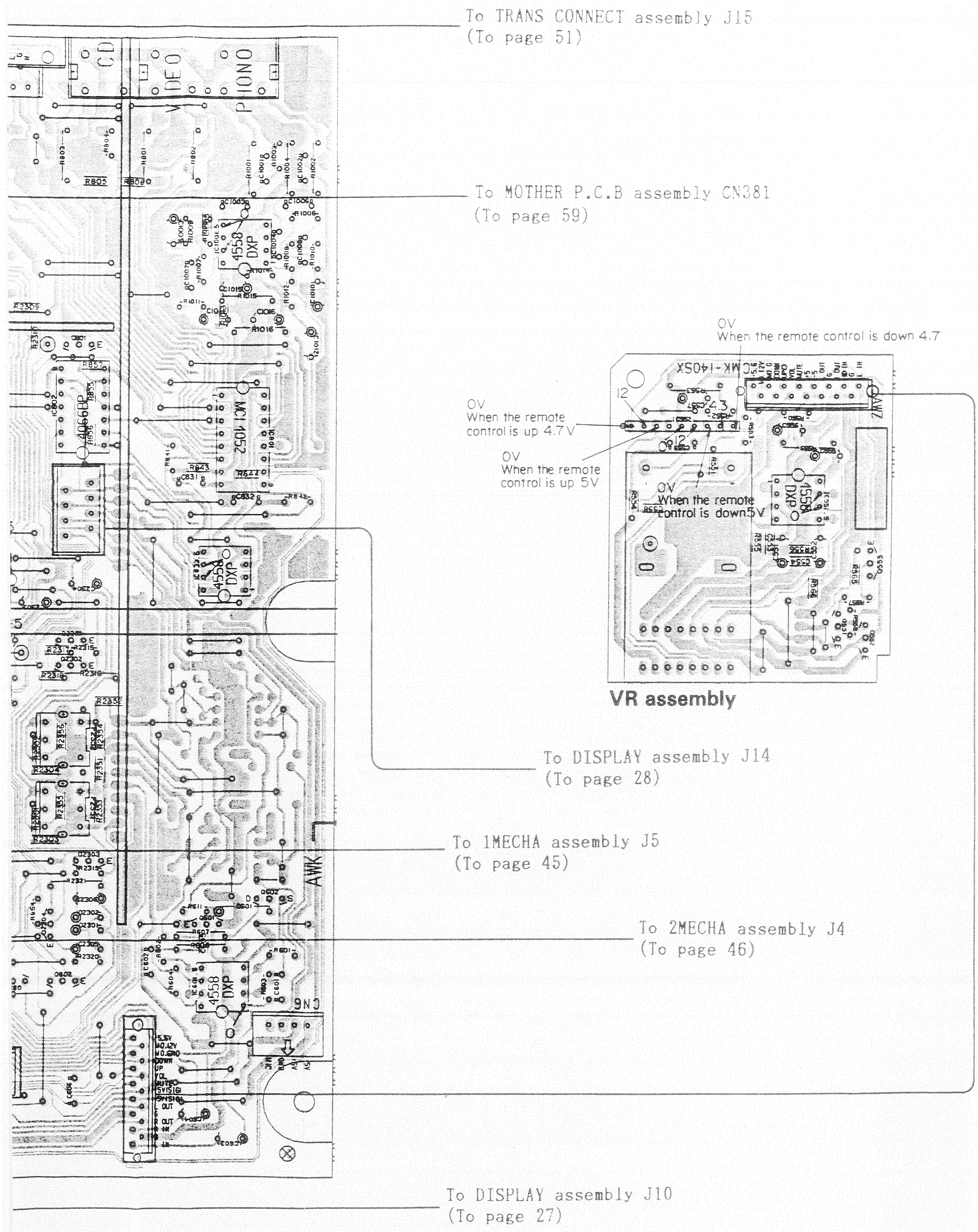
HEAD PHONE assembly


AWZ
CMK-140SX

To DISPLAY assembly J11
(To page 27)

Q801
IC802
Q2301-Q2304
Q803 Q802

IC1001
IC833 IC801
Q601 Q602
IC601


CD
VIDEO
PHONO
4558 DXP
MC14052
4066BP
AWK
CN6
CMK-140SX
AWZ
4558 DXP
12

To TRANS CONNECT assembly J15
(To page 51)

To MOTHER P.C.B assembly CN381
(To page 59)

OV
When the remote control is down 4.7

OV
When the remote control is up 4.7V

OV
When the remote control is up 5V

OV
When the remote control is down5V

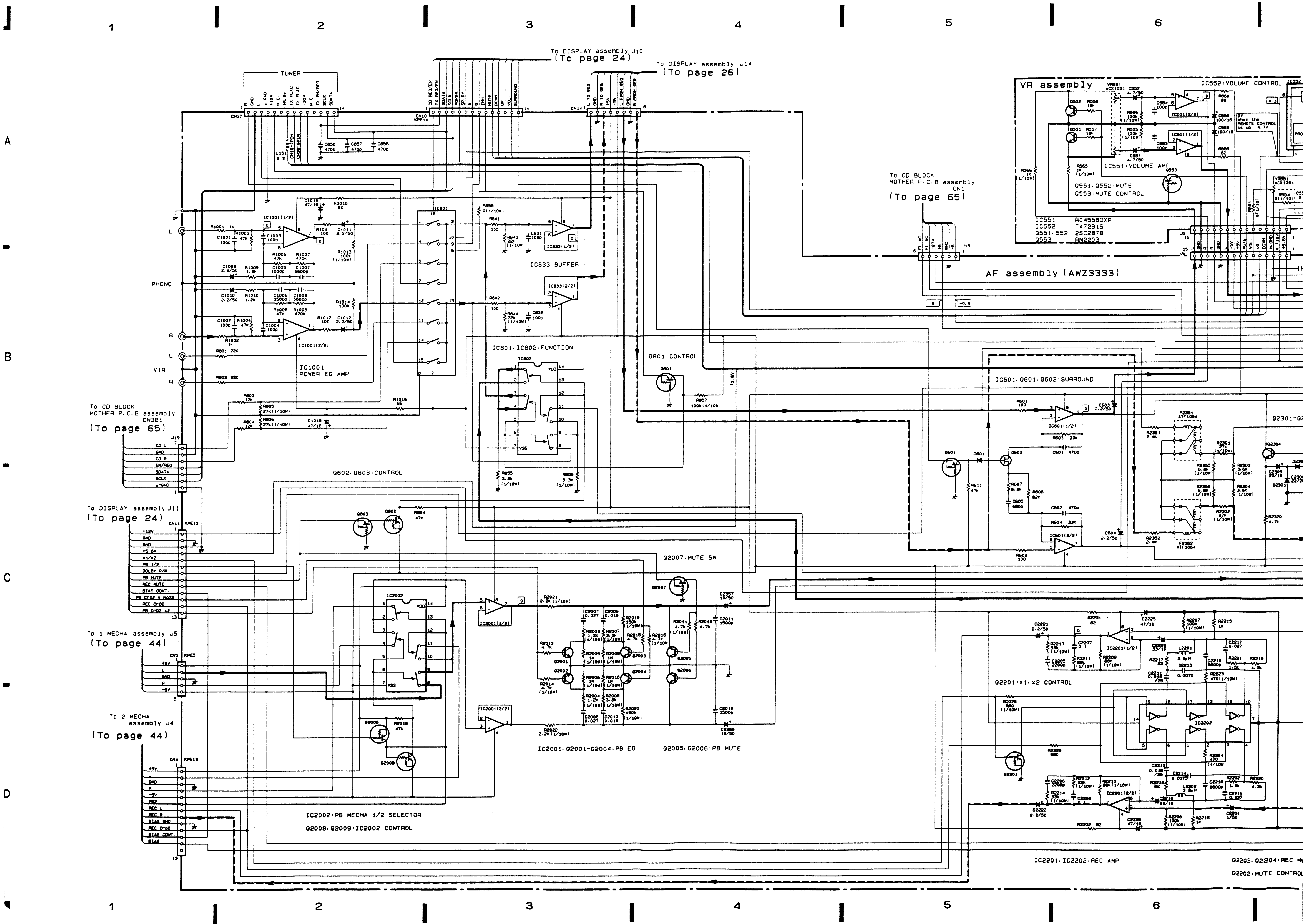
VR assembly

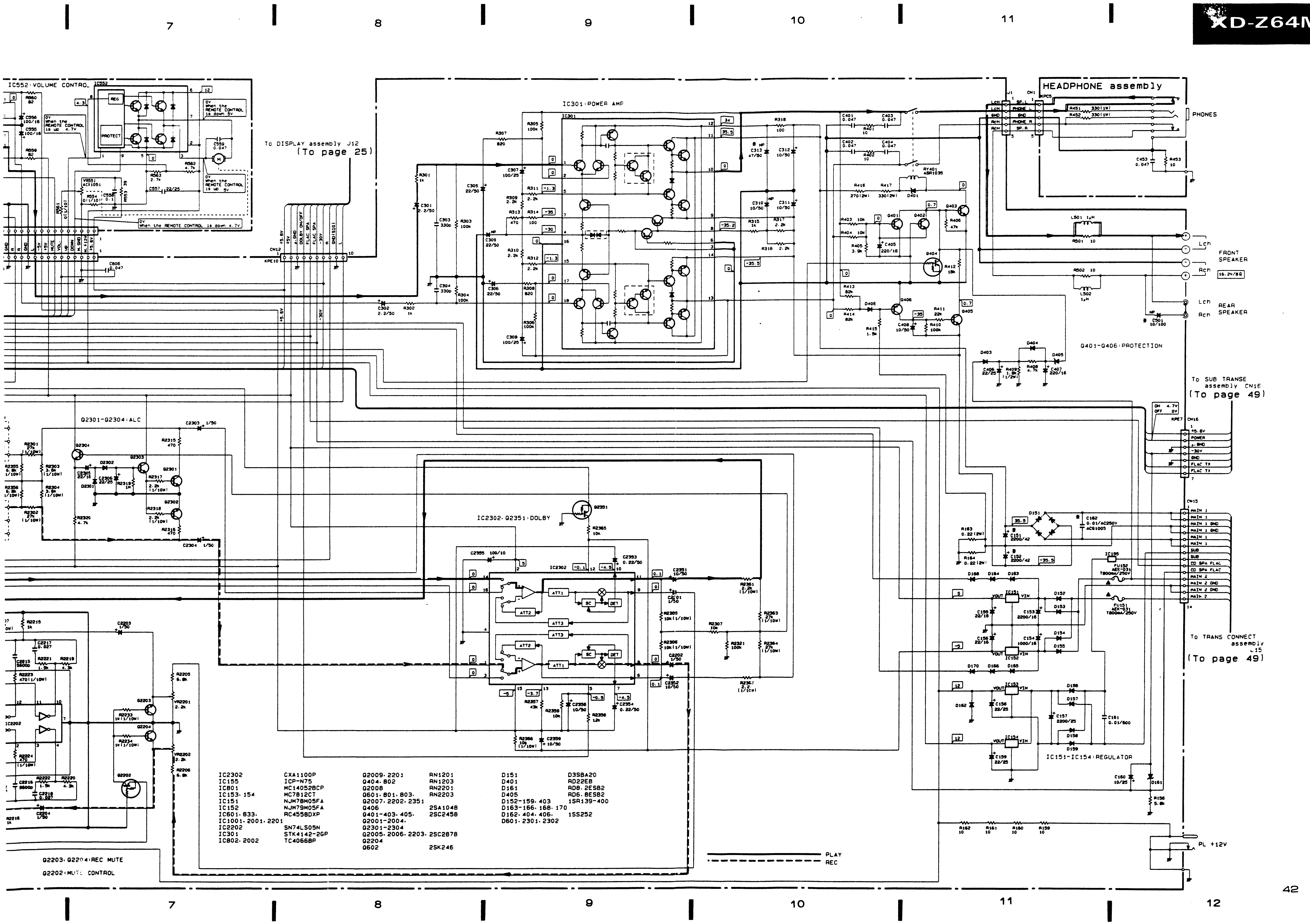
To DISPLAY assembly J14
(To page 28)

To 1MECHA assembly J5
(To page 45)

To 2MECHA assembly J4
(To page 46)

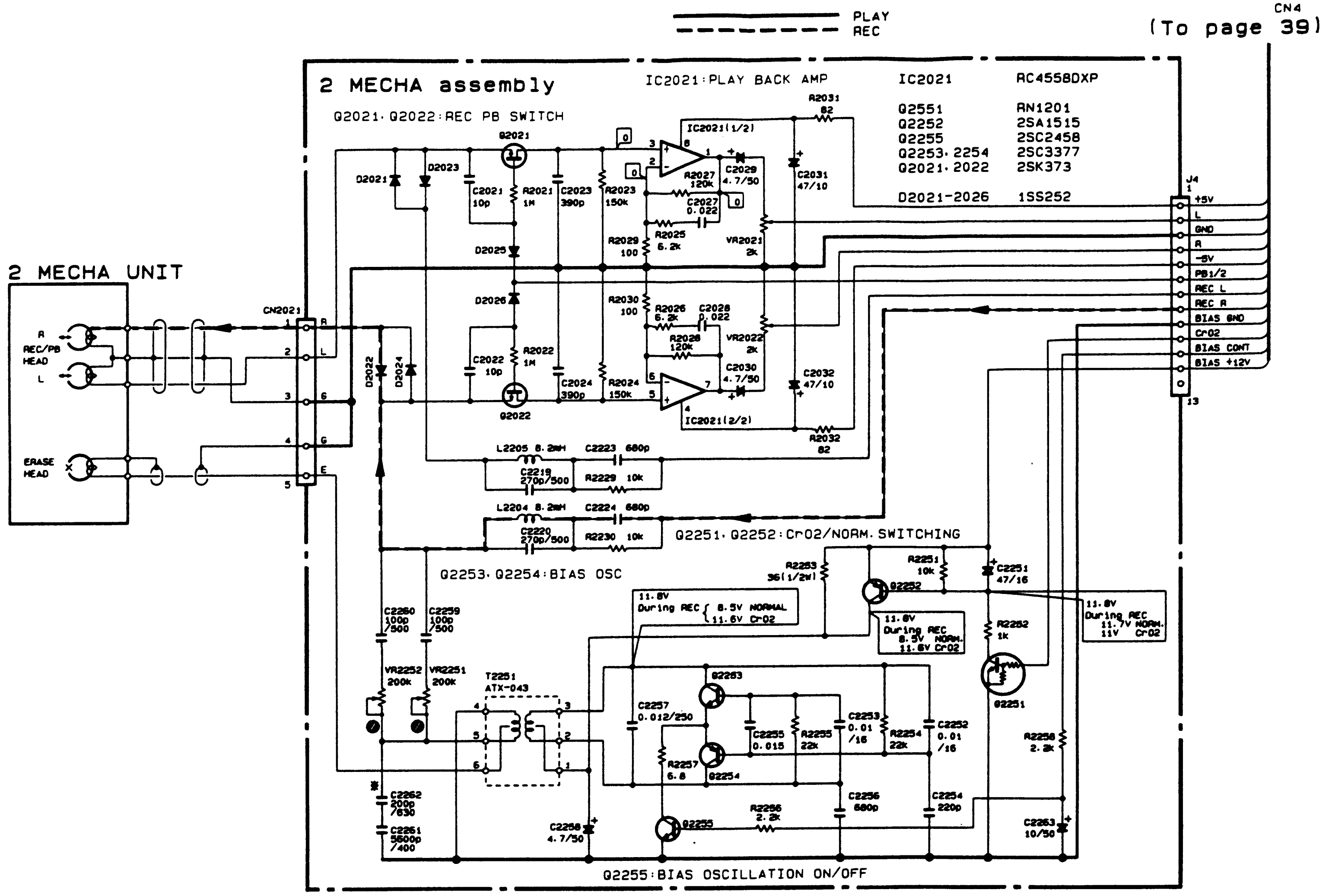
To DISPLAY assembly J10
(To page 27)

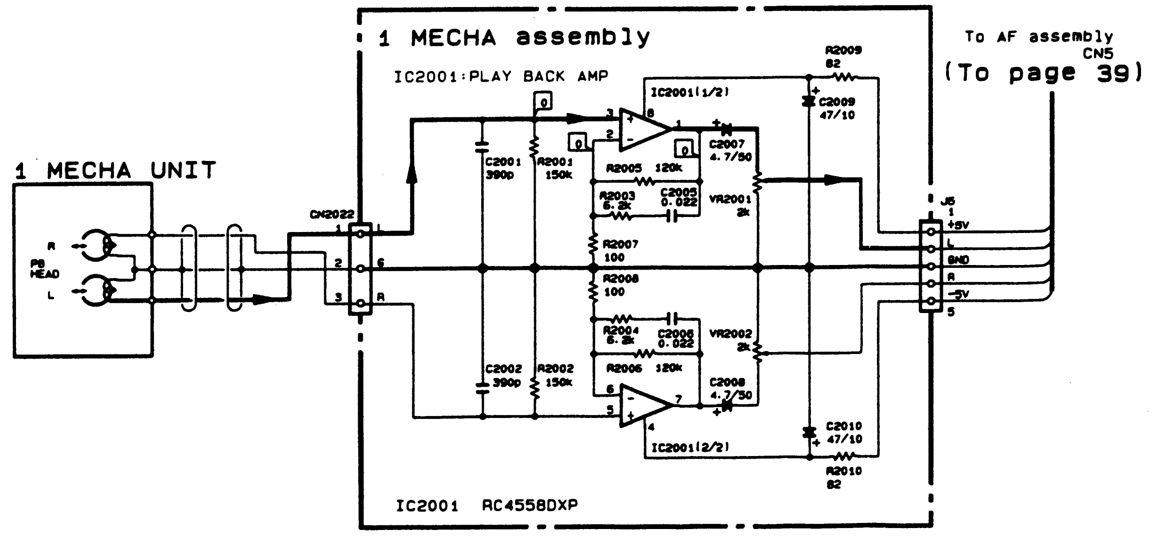

1
2
3
4
5
6
A
B
C
D
TUNER
CN17
CN10 KPE14
CN14
To DISPLAY assembly J10
(To page 24)
To DISPLAY assembly J14
(To page 26)
VR assembly
IC552:VOLUME CONTROL
IC551:VOLUME AMP
Q551,Q552:MUTE
Q553:MUTE CONTROL
IC551 RC4558DXP
IC552 TA7291S
Q551,552 2SC2878
Q553 RN2203
To CD BLOCK MOTHER P.C.B assembly CN1
(To page 65)
J18
J2
AF assembly (AWZ3333)
PHONO
L
R
VTR
IC1001(1/2)
IC1001(2/2)
IC1001: POWER EQ AMP
IC801
IC833:BUFFER
IC833(1/2)
IC833(2/2)
IC801,IC802:FUNCTION
IC802
Q801:CONTROL
To CD BLOCK MOTHER P.C.B assembly CN381
(To page 65)
J19
CD L
GND
CD R
EN/REQ
SDATA
SCLK
D-GND
Q802,Q803:CONTROL
IC601,Q601,Q602:SURROUND
IC601(1/2)
IC601(2/2)
Q2301-Q2
F2351 ATF1064
F2352 ATF1064
To DISPLAY assembly J11
(To page 24)
CN11 KPE13
+12V
GND
GND
+5.6V
x1/x2
PB 1/2
DOLBY P/R
PB MUTE
REC MUTE
BIAS CONT.
PB CrO2 & MoX2
REC CrO2
PB CrO2 x2
To 1 MECHA assembly J5
(To page 44)
CN5 KPE5
To 2 MECHA assembly J4
(To page 44)
CN4 KPE13
+5V
GND
-5V
PB2
REC L
REC R
BIAS GND
REC CrO2
BIAS CONT.
BIAS
Q2007:MUTE SW
IC2002
IC2001(1/2)
IC2001(2/2)
IC2001,Q2001-Q2004:PB EQ
Q2005,Q2006:PB MUTE
IC2002:PB MECHA 1/2 SELECTOR
Q2008,Q2009:IC2002 CONTROL
IC2201(1/2)
IC2201(2/2)
Q2201:x1,x2 CONTROL
IC2202
IC2201,IC2202:REC AMP
Q2203,Q2204:REC MU
Q2202:MUTE CONTRO


7
8
9
10
11
12
A
B
C
D
IC552:VOLUME CONTROL
REG
PROTECT
M
0V When the REMOTE CONTROL is down 5V
0V When the REMOTE CONTROL is up 4.7V
0V When the REMOTE CONTROL is down 4.7V
To DISPLAY assembly J12
(To page 25)
IC301:POWER AMP
HEADPHONE assembly
PHONES
FRONT SPEAKER
REAR SPEAKER
Lch
Rch
16.2V/8Ω
Q401-Q406:PROTECTION
RY401 ASR1035
To SUB TRANSE assembly CN16
(To page 49)
Q2301-Q2304:ALC
IC2302·Q2351:DOLBY
ATT1
ATT2
ATT3
SC
DET
To TRANS CONNECT assembly J15
(To page 49)
IC151-IC154:REGULATOR
FU151 AEK-031 T800mA/250V
FU152 AEK-031 T800mA/250V
PL +12V
Q2203·Q2204:REC MUTE
Q2202:MUTE CONTROL
PLAY
REC

IC2302	CXA1100P	Q2009·2201	RN1201	D151	D3SBA20
IC155	ICP-N75	Q404·802	RN1203	D401	RD22EB
IC801	MC14052BCP	Q2008	RN2201	D161	RD8.2ESB2
IC153·154	MC7812CT	Q601·801·803·	RN2203	D405	RD6.8ESB2
IC151	NJM78M05FA	Q2007·2202·2351		D152-159·403	1SR139-400
IC152	NJM79M05FA	Q406	2SA1048	D163-166·168·170	
IC601·833·	RC4558DXP	Q401-403·405·	2SC2458	D162·404·406·	1SS252
IC1001·2001·2201		Q2001-2004·		D601·2301·2302	
IC2202	SN74LS05N	Q2301-2304			
IC301	STK4142-2GP	Q2005·2006·2203·	2SC2878		
IC802·2002	TC4066BP	Q2204			
		Q602	2SK246		

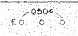
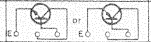
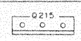
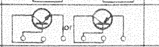
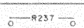
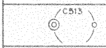
3.4 1 MECHA and 2 MECHA assembly


PLAY
REC
To AF assembly CN4
(To page 39)
2 MECHA assembly
IC2021:PLAY BACK AMP
Q2021·Q2022:REC PB SWITCH
IC2021 RC4558DXP
Q2551 RN1201
Q2252 2SA1515
Q2255 2SC2458
Q2253·2254 2SC3377
Q2021·2022 2SK373
D2021~2026 1SS252
2 MECHA UNIT
REC/PB HEAD
ERASE HEAD
CN2021
J4
+5V
L
GND
R
-5V
PB1/2
REC L
REC R
BIAS GND
CrO2
BIAS CONT
BIAS +12V
Q2251·Q2252:CrO2/NORM.SWITCHING
Q2253·Q2254:BIAS OSC
T2251 ATX-043
11.6V During REC { 8.5V NORMAL 11.6V CrO2
Q2255:BIAS OSCILLATION ON/OFF


1 MECHA assembly
IC2001:PLAY BACK AMP
To AF assembly CN5
(To page 39)
1 MECHA UNIT
PB HEAD
CN2022
J5
+5V
L
GND
R
-5V
IC2001 RC4558DXP

NOTE

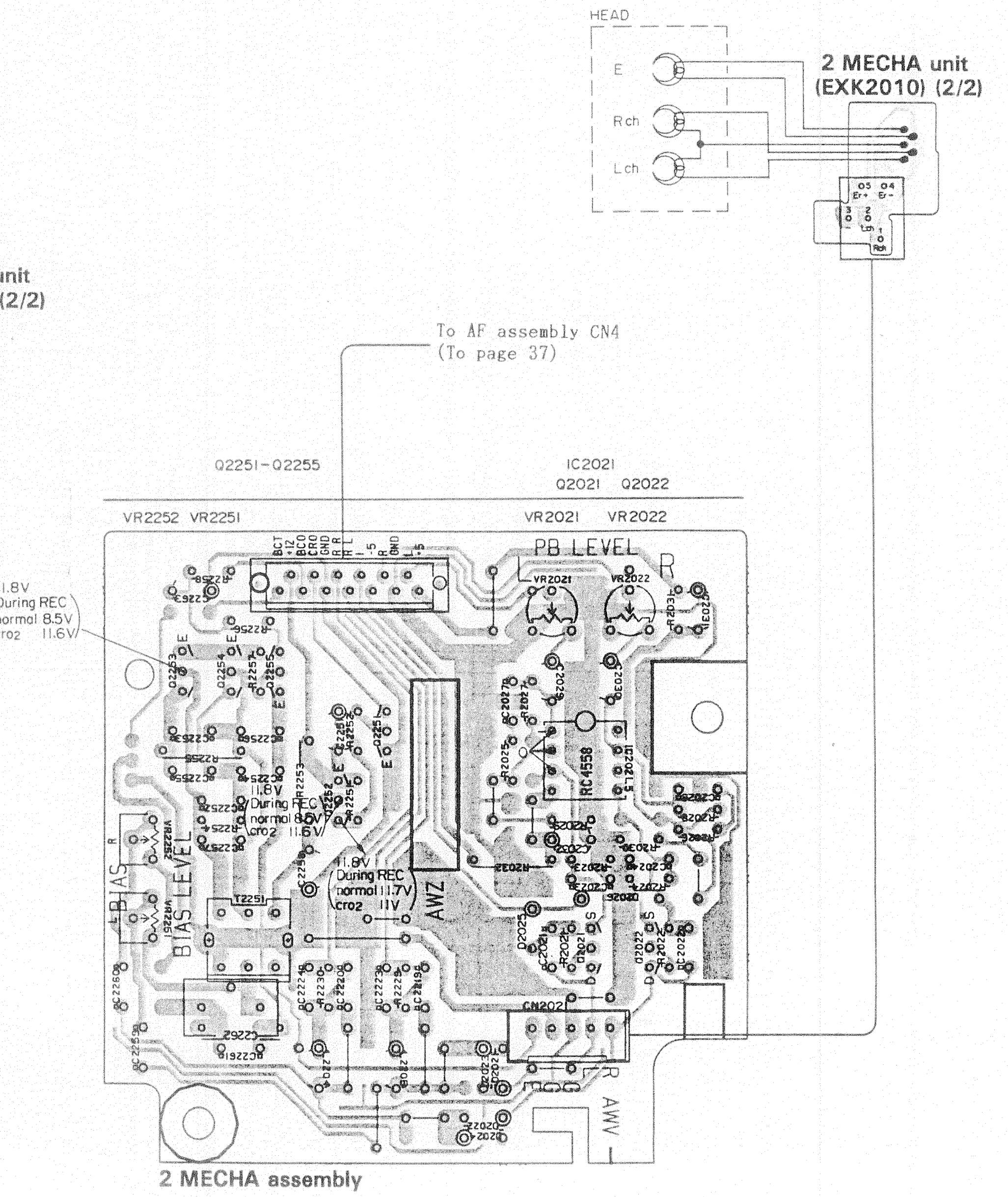
1. This P.C.B connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the following Table.

P.C.B. pattern diagram indication	Corresponding part symbol	Part Name
		Transistor
		Radiator type transistor
		Diode
		Resistor
		Capacitor (Polarity)
		Capacitor (Non-polarity)

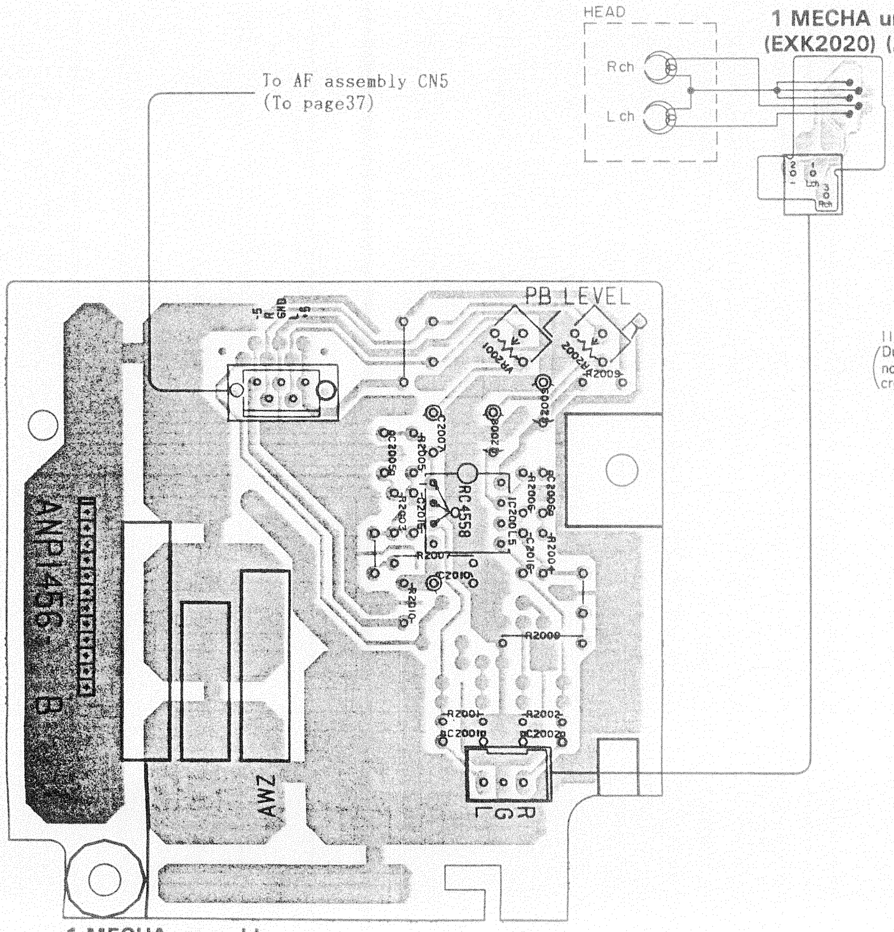
Others

P.C.B. pattern diagram indication	Part Name
IC	IC
S	Switch
RY	Relay
L	Coil
F	Filter
VR	Variable resistor or Semi-fixed resistor

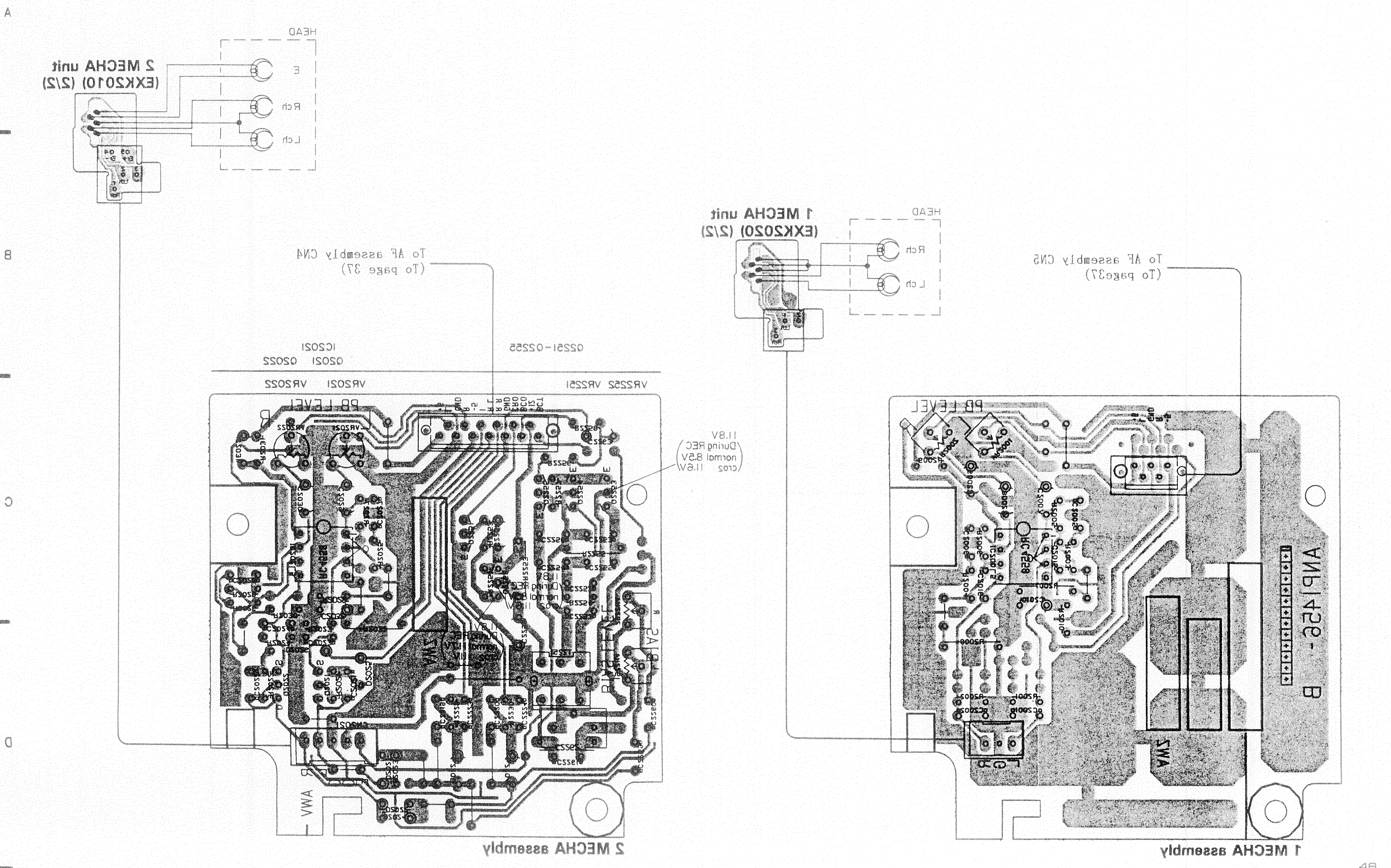
3. The capacitor terminal marked with ◎ (double circles) shows negatine termianl.
4. The diode terminal marked with ◎ (double circles) shows cathode side.
5. The transistor terminal to which E is affixed shows the emitter.


HEAD
E
Rch
Lch
2 MECHA unit
(EXK2010) (2/2)
O5 Er+
O4 Er−
3
2
Lch
1
Rch
To AF assembly CN4
(To page 37)
Q2251−Q2255
IC2021
Q2021 Q2022
VR2252 VR2251
VR2021 VR2022
BCT
+12
BCO
CRO
GND
R R
R L
−5
R
GND
L
+5
PB LEVEL
L
R
VR2021
VR2022
11.8V
(During REC
normal 8.5V
cro2 11.6V)
11.8V
During REC
normal 8.5V
cro2 11.6V
11.8V
(During REC
normal 11.7V
cro2 11V
BIAS LEVEL
BIAS
L
R
T2251
AWZ
RC4558
CN2021
R
L
G
AWV

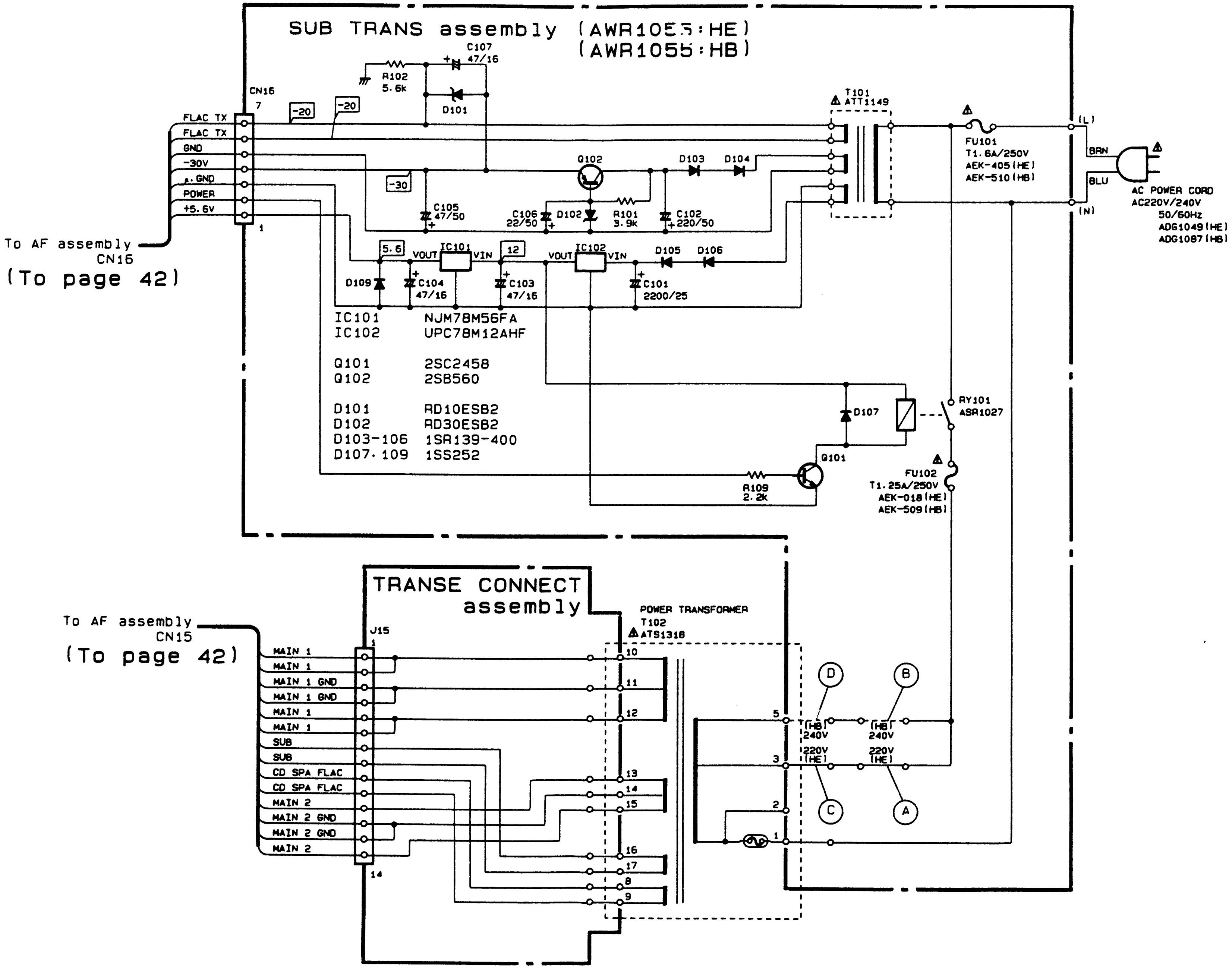
2 MECHA assembly


HEAD
Rch
Lch
1 MECHA unit
(EXK2020) (2/2)
To AF assembly CN5
(To page37)
−5
R
GND
L
+5
PB LEVEL
VR2001
VR2002
RC4558
IC2001
R2009
R2007
R2008
R2001
R2002
C2001
C2002
ANP1456-B
AWZ
R
L
G

1 MECHA assembly


2 MECHA unit
(EXK2010) (2/2)
HEAD
E
Rch
Lch
1 MECHA unit
(EXK2020) (2/2)
HEAD
Rch
Lch
To AF assembly CN4
(To page 37)
To AF assembly CN5
(To page37)
IC2021
Q2021 Q2022
VR2021 VR2022
Q2251–Q2255
VR2252 VR2251
PB LEVEL
11.8V
During REC
normal 8.5V
11.6V
BIAS
BIAS LEVEL
AW2
VWA
ANP1456 - B
RC4558
2 MECHA assembly
1 MECHA assembly
A
B
C
D
1
2
3
4
5
6

3.5 SUB TRANS (AWR1056) and TRANS CONNECT assembly


SUB TRANS assembly (AWR1056:HE)
(AWR1055:HB)
CN16
7
1
FLAC TX
FLAC TX
GND
-30V
μ. GND
POWER
+5.6V
To AF assembly
CN16
(To page 42)
-20
-20
-30
5.6
12
R102
5.6k
C107
47/16
D101
Q102
D103
D104
C105
47/50
C106
22/50
D102
R101
3.9k
C102
220/50
IC101
VOUT
VIN
IC102
VOUT
VIN
D105
D106
D109
C104
47/16
C103
47/16
C101
2200/25
IC101 NJM78M56FA
IC102 UPC78M12AHF
Q101 2SC2458
Q102 2SB560
D101 RD10ESB2
D102 RD30ESB2
D103-106 1SR139-400
D107·109 1SS252
T101
ATT1149
FU101
T1.6A/250V
AEK-405(HE)
AEK-510(HB)
(L)
(N)
BRN
BLU
AC POWER CORD
AC220V/240V
50/60Hz
ADG1049(HE)
ADG1087(HB)
D107
RY101
ASR1027
Q101
R109
2.2k
FU102
T1.25A/250V
AEK-018(HE)
AEK-509(HB)
TRANSE CONNECT
assembly
To AF assembly
CN15
(To page 42)
J15
1
14
MAIN 1
MAIN 1
MAIN 1 GND
MAIN 1 GND
MAIN 1
MAIN 1
SUB
SUB
CD SPA FLAC
CD SPA FLAC
MAIN 2
MAIN 2 GND
MAIN 2 GND
MAIN 2
POWER TRANSFORMER
T102
ATS1318
10
11
12
13
14
15
16
17
8
9
5
3
2
1
D
B
C
A
(HB)
240V
(HB)
240V
220V
(HE)
220V
(HE)

Line Voltage Selection

(For HE, HB and HEWZIW types)

Line voltage can be changed with the following steps.

1. Disconnect the AC Power cord.
2. Remove the top cover.
3. Change the position of the jumper wires Ⓐ – Ⓓ as follows ;

Jumper wire \ Voltage	220V	240V
Ⓐ	○	×
Ⓑ	×	○
Ⓒ	○	×
Ⓓ	×	○

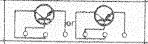
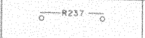
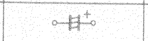
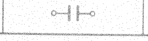
○ : Be needed
× : Be needless

4. Stick the line voltage label on the rear panel.

Description	Part No.
220V label	AAX−193
240V label	AAX−192

NOTE

1. This P.C.B connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the following Table.

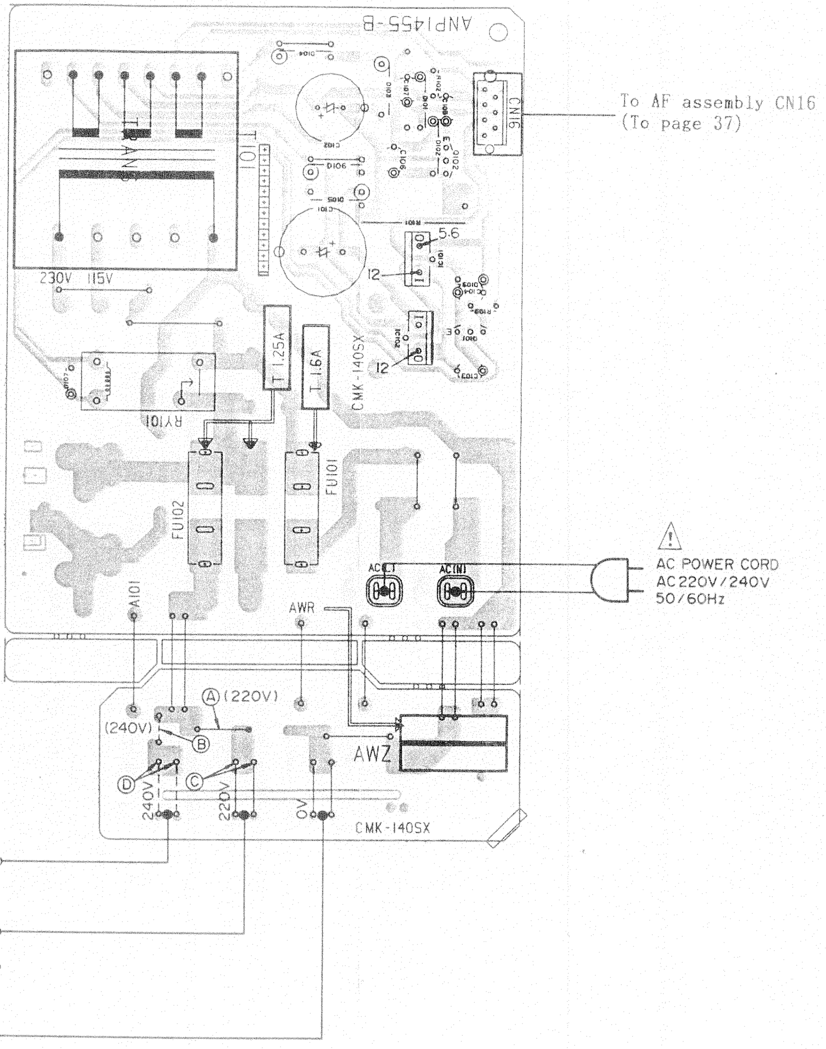
P.C.B. pattern diagram indication	Corresponding part symbol	Part Name
		Transistor
		Radiator type transistor
		Diode
		Resistor
		Capacitor (Polarity)
		Capacitor (Non-polarity)

Others

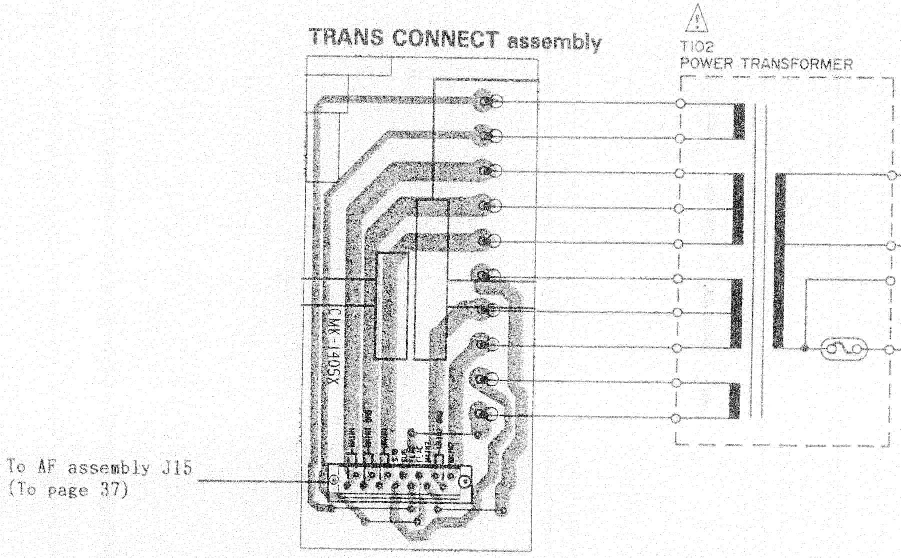
P.C.B. pattern diagram indication	Part Name
IC	IC
S	Switch
RY	Relay
L	Coil
F	Filter
VR	Variable resistor or Semi-fixed resistor

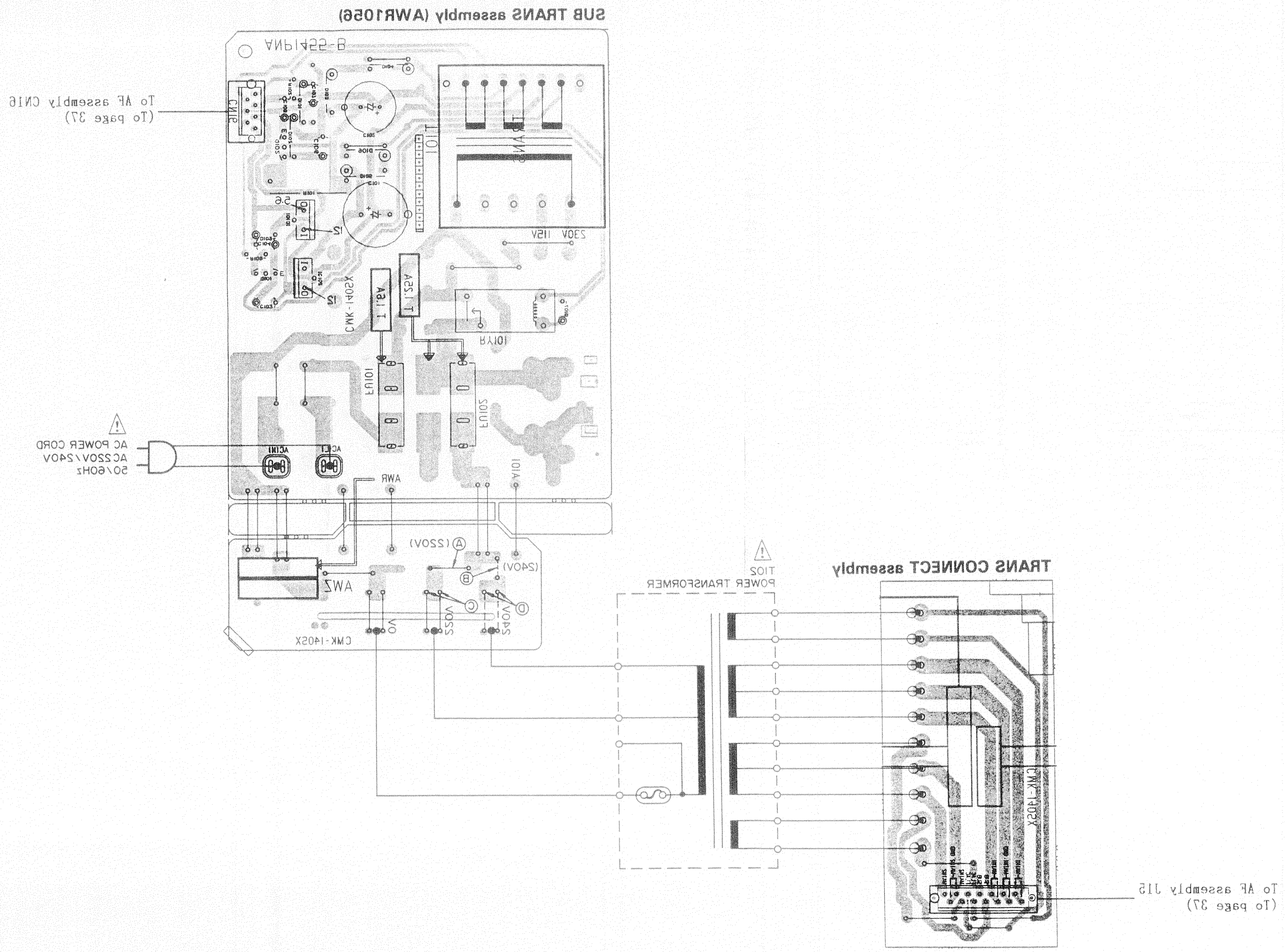
3. The capacitor terminal marked with ⊚(double circles) shows negatine termianl.
4. The diode terminal marked with ⊚(double circles) shows cathode side.
5. The transistor terminal to which E is affixed shows the emitter.

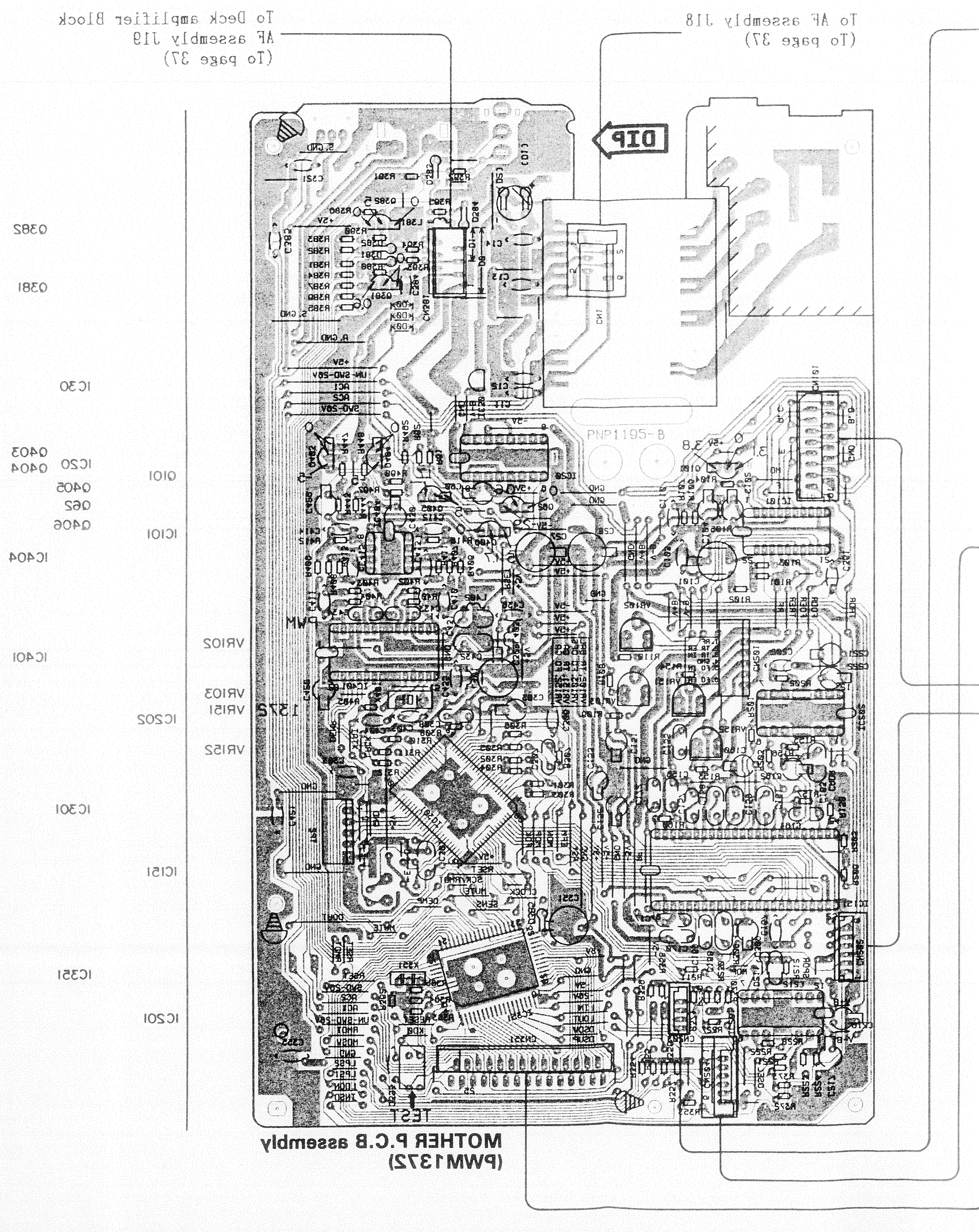
SUB TRANS assembly (AWR1056)


ANP1455-B
T101 TRANS
CN16
To AF assembly CN16
(To page 37)
230V 115V
T 1.25A
T 1.6A
CMK-140SX
RY101
5.6
12
12
FU102
FU101
A101
AWR
AC(L)
AC(N)
AC POWER CORD
AC220V/240V
50/60Hz
Ⓐ(220V)
(240V)
Ⓑ
Ⓒ
Ⓓ
AWZ
240V
220V
0V
CMK-140SX

TRANS CONNECT assembly

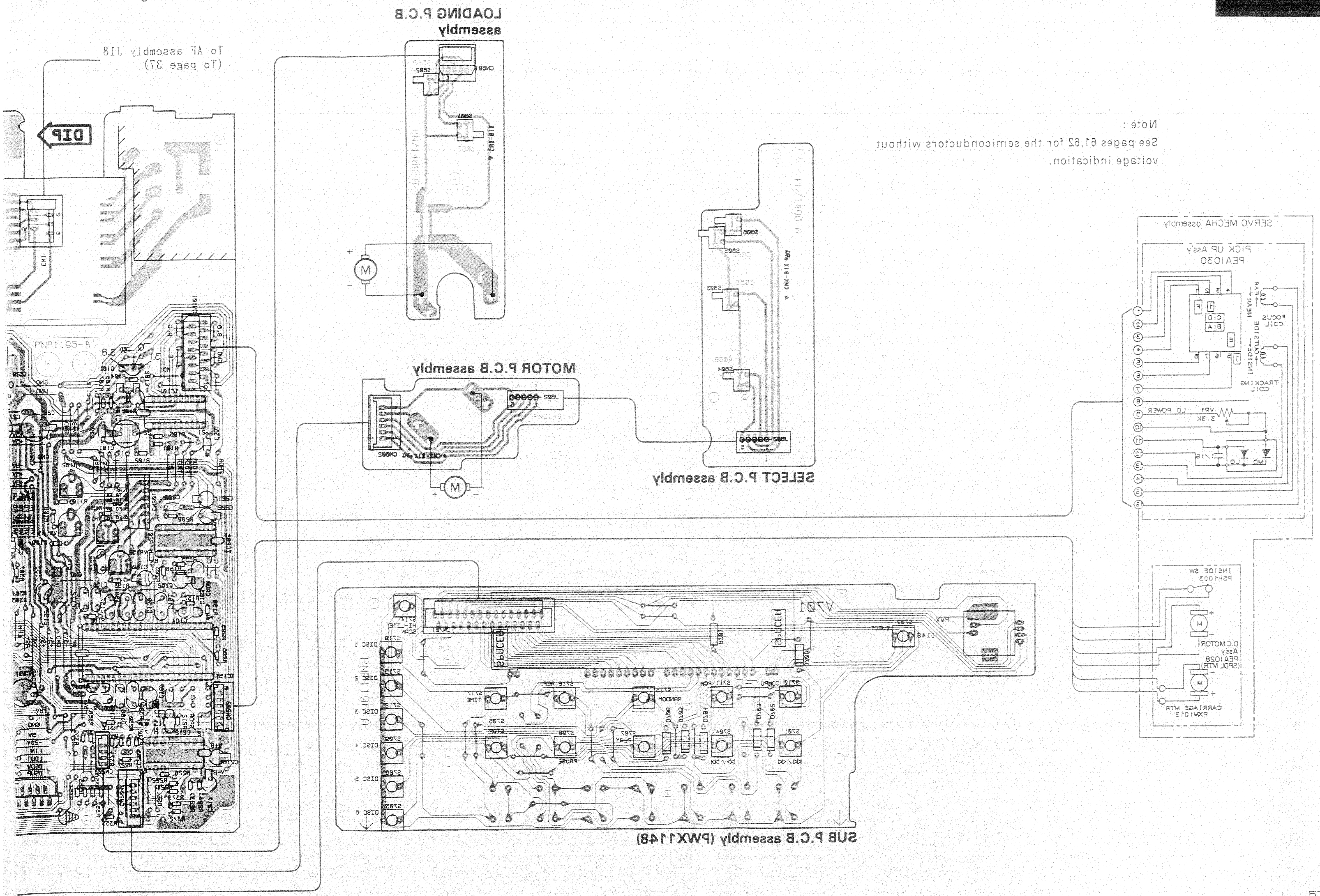

T102
POWER TRANSFORMER
CMK-140SX
To AF assembly J15
(To page 37)


SUB TRANS assembly (AWR1056)
ANP1455-B
CN16
To AF assembly CN16
(To page 37)
T101
230V
115V
RY101
CWK-1405X
T1.6A
T1.25A
FU101
FU102
AC POWER CORD
AC220V/240V
50/60Hz
AC1N1
AC1L1
AWR
V101
AW2
(220V)
(240V)
CMK-1405X
0V
220V
240V
T102
POWER TRANSFORMER
TRANS CONNECT assembly
CMK-1405X
To AF assembly J15
(To page 37)

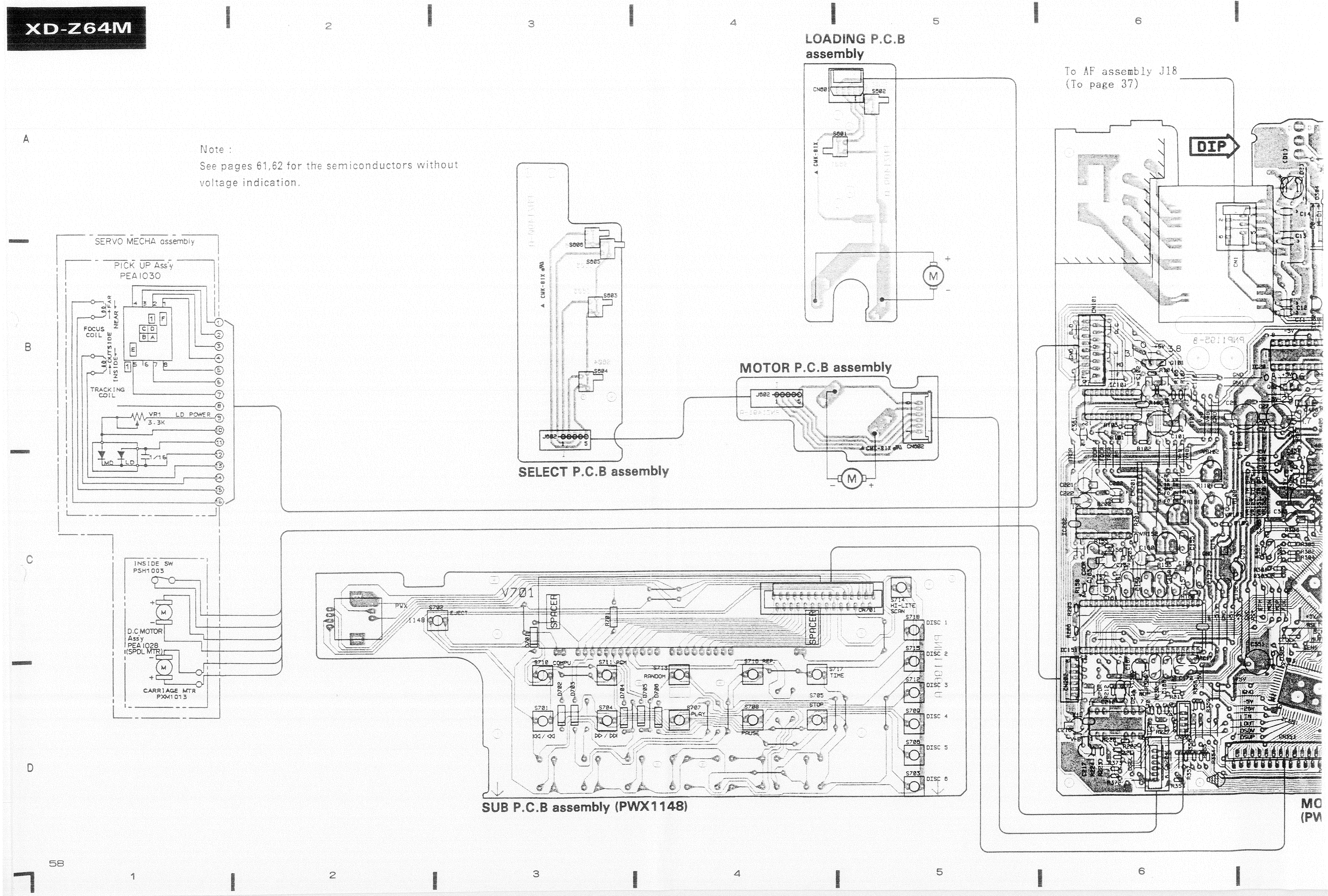

To Deck amplifier Block
AF assembly J19
(To page 37)
To AF assembly J18
(To page 37)
DIP
PNP1195-B
Q382
Q381
IC30
Q403
Q404
IC20
Q405
Q62
Q406
IC404
IC401
Q101
IC101
VR102
VR103
VR151
IC202
VR152
IC301
IC151
IC351
IC201
PWM
1372
TEST

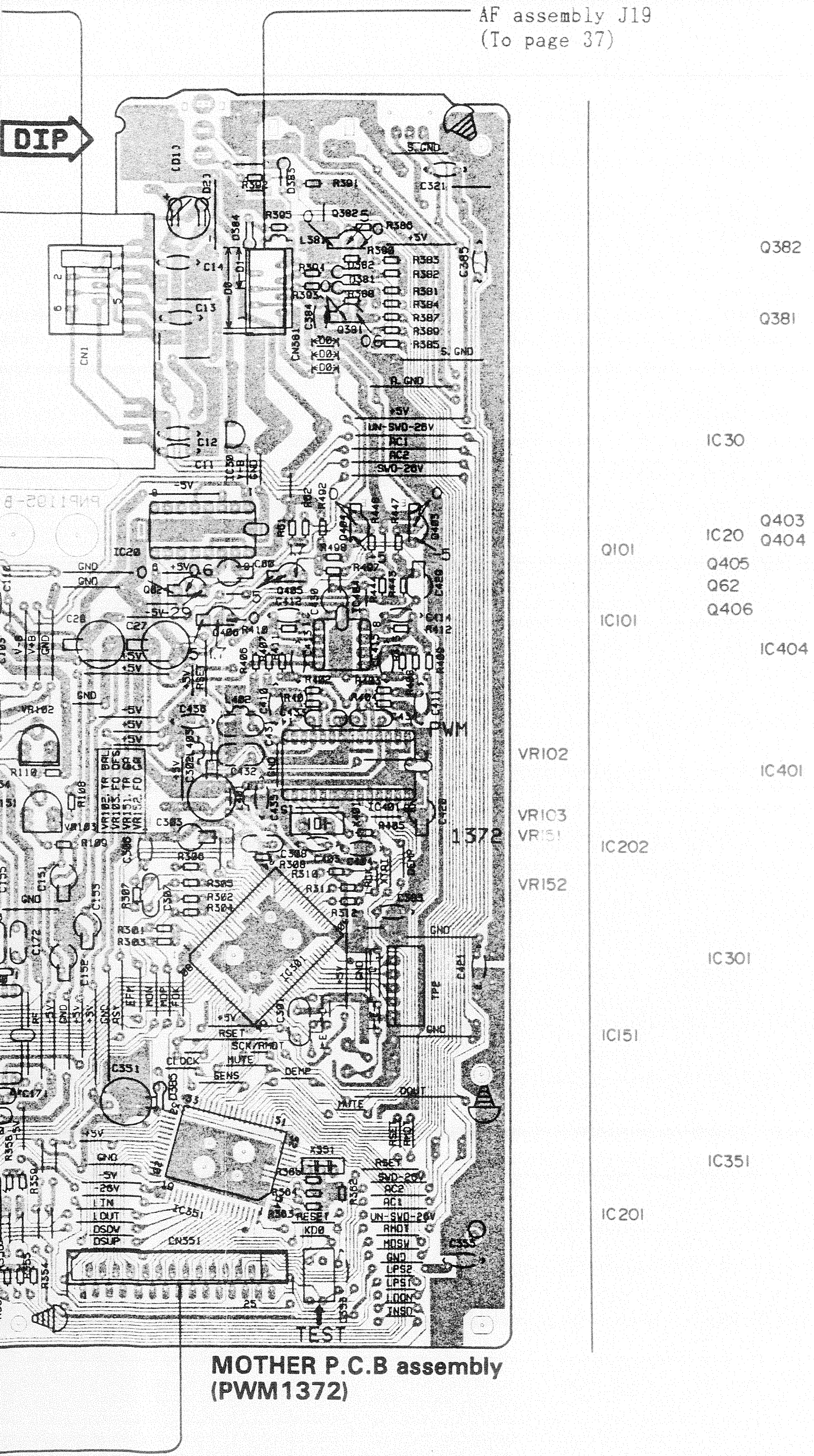
**MOTHER P.C.B assembly
(PWM1372)**

Note :
See pages 61,62 for the semiconductors without voltage indication.


LOADING P.C.B assembly
MOTOR P.C.B assembly
SELECT P.C.B assembly
SUB P.C.B assembly (PWX1148)
To AF assembly J18
(To page 37)
DIP
PNP1195-B
SERVO MECHA assembly
PICK UP Ass'y
PEA1030
FOCUS COIL
TRACKING COIL
LD POWER
VR1 3.3K
LD
MD
INSIDE SW
PSH1003
D.C MOTOR Ass'y
PEA1028
(SPDL MTR)
CARRIAGE MTR
PXM1013
M
DISC 1
DISC 2
DISC 3
DISC 4
DISC 5
DISC 6
HI-LITE SCAN
TIME
REP
RANDOM
PGM
COMPU
PLAY
PAUSE
V701
SPACER
A
B
C
D
1
2
3
4
5
6

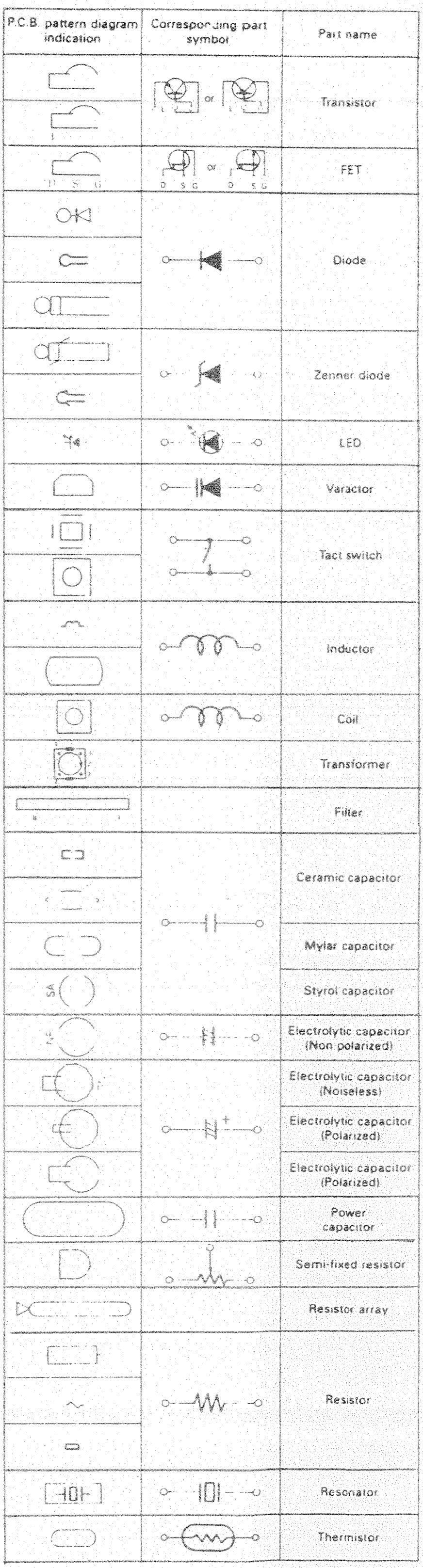
Note :
See pages 61,62 for the semiconductors without voltage indication.


1
2
3
4
5
6
A
B
C
D
LOADING P.C.B assembly
CN801
S802
S801
CMK-81X
M
To AF assembly J18
(To page 37)
DIP
CN1
SERVO MECHA assembly
PICK UP Ass'y
PEA1030
FOCUS COIL
FAR
NEAR
OUTSIDE
INSIDE
TRACKING COIL
VR1 3.3K
LD POWER
MD
LD
INSIDE SW
PSH1003
D.C MOTOR Ass'y
PEA1028
(SPDL MTR)
CARRIAGE MTR
PXM1013
S806
S805
S803
S804
J802
CMK-81X
SELECT P.C.B assembly
MOTOR P.C.B assembly
J802
CN802
CMI-81X
M
V701
SPACER
PWX
1148
S702 EJECT
S714 HI-LITE SCAN
S718 DISC 1
S715 DISC 2
S712 DISC 3
S709 DISC 4
S706 DISC 5
S703 DISC 6
S710 COMPU
S711 PGM
S713 RANDOM
S716 REP.
S717 TIME
S701
S704
S707 PLAY
S708 PAUSE
S705 STOP
CN701
SUB P.C.B assembly (PWX1148)
CN101
IC101
IC201
IC151
CN201
CN351
GND
+5V
MO
(PW


DIP
CN1
S.GND
A.GND
+5V
UN-SWD-28V
AC1
AC2
SWD-28V
IC20
IC401
IC301
IC351
CN351
PWM
1372
TEST
PNP1105-B
Q382
Q381
IC30
IC20
Q403
Q404
Q405
Q62
Q406
Q101
IC101
IC404
VR102
IC401
VR103
VR151
IC202
VR152
IC301
IC151
IC351
IC201
A
B
C
D

To Deck amplifier Block
AF assembly J19
(To page 37)

MOTHER P.C.B assembly
(PWM1372)



P.C.B. pattern diagram indication	Corresponding part symbol	Part name
		Transistor
		FET
		Diode
		Zenner diode
		LED
		Varactor
		Tact switch
		Inductor
		Coil
		Transformer
		Filter
		Ceramic capacitor
		Mylar capacitor
		Styrol capacitor
		Electrolytic capacitor (Non polarized)
		Electrolytic capacitor (Noiseless)
		Electrolytic capacitor (Polarized)
		Electrolytic capacitor (Polarized)
		Power capacitor
		Semi-fixed resistor
		Resistor array
		Resistor
		Resonator
		Thermistor

1. This P.C.B. connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the above Table.
3. The capacitor terminal marked with ▭ shows negative terminal.
4. The diode marked with ○ shows cathode side.
5. The transistor terminal marked with ▭ shows emitter.

1. **RESISTORS:**
Indicated in Ω, ¼W, ⅙W, ±5% tolerance unless otherwise noted k : kΩ, M : MΩ, (F) : ±1%, (G) : ±2%, (K) : ±10% (M); ±20% tolerance

2. **CAPACITORS:**
Indicated in capacity (μF)/voltage (V) unless otherwise noted p : pF
Indication without voltage is 50V except electrolytic capacitor.

3. **VOLTAGE, CURRENT:**
▭ : DC voltage (V) at play state.
Value in ( ) is DC voltage at rated power.

4. **OTHERS:**
➡ : Signal route.
⊘ : Adjusting point.
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
※ marked capacitors and resistors have parts numbers.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

5.SWITCH
S701 |◀◀ (◁◁)
S702 ▲
S703 D6
S704 ▶▶| (▷▷)
S705 ■
S706 D5
S707 ▶
S708 ▮▮
S709 D4
S710 COMPU
S711 PGM
S712 D3
S713 RND
S714 SCAN
S715 D2
S716 REP
S717 TIME
S718 D1

List of semiconductor terminal voltage

Note: All terminal voltages are measured in the PLAY mode.

IC151
CXA1372S

Pin No.	Volts	Pin No.	Volts
1	0	25	-5
2	0	26	5
3	0	27	5
4	0	28	5
5	0	29	5
6	0	30	5
7	0	31	5
8	0	32	0
9	0	33	5
10	0	34	0
11	-1	35	0
12	0	36	N.C
13	0.2	37	2.5
14	0	38	2.5
15	0	39	5
16	5	40	-1.5
17	0	41	-1.7
18	0	42	5
19	0	43	-0.7
20	0.2~0.8	44	-1.6
21	0	45	0
22	-4	46	0.8
23	1.3	47	-5
24	0	48	0

IC101
CXA1471S

Pin No.	Volts	Pin No.	Volts
1	N.C	16	0
2	2.9	17	0
3	-4.7	18	0.8
4	0	19	0
5	0	20	5
6	-5	21	5
7	0	22	N.C
8	0		
9	N.C		
10	0		
11	N.C		
12	N.C		
13	-0.9		
14	-0.7		
15	0		

IC351
PD4315A

Pin No.	Volts	Pin No.	Volts	Pin No.	Volts	Pin No.	Volts
1	5	17	N.C	33	5	49	0
2	-23	18	-26	34	3.3~4.6	50	0
3	-23	19	-5	35	4.4	51	0
4	-23	20	-10	36	0	52	0
5	-23	21	-7.5	37	5	53	5
6	-23	22	-6.5	38	2.5	54	5
7	-23	23	-4	39	0	55	5
8	-23	24	-4	40	5	56	2.2
9	-23	25	-9	41	N.C	57	2.2
10	N.C	26	5	42	0	58	0
11	N.C	27	N.C	43	5	59	0
12	0	28	-13	44	0	60	N.C
13	0	29	-13	45	5	61	0
14	0	30	-13	46	0.5	62	0
15	0	31	4	47	0	63	0
16	N.C	32	5	48	0	64	0

IC301
CXD2500Q

Pin No.	Volts	Pin No.	Volts	Pin No.	Volts
1	5	31	N.C	61	N.C
2	N.C	32	2.5	62	N.C
3	5	33	5	63	0
4	2.6	34	2.5	64	N.C
5	N.C	35	2.5	65	0
6	5	36	N.C	66	3.3~4.6
7	N.C	37	N.C	67	5
8	N.C	38	N.C	68	0
9	0	39	N.C	69	2.1~3
10	0	40	N.C	70	5
11	N.C	41	N.C	71	5
12	0	42	5	72	5
13	N.C	43	N.C	73	5
14	N.C	44	N.C	74	5
15	N.C	45	N.C	75	5
16	N.C	46	4.4	76	0
17	0	47	0	77	5
18	2.5	48	0	78	5
19	2.4	49	0~0.3	79	5
20	2.4	50	N.C	80	0
21	0	51	N.C		
22	2.5	52	0		
23	5	53	2.5		
24	2.5	54	N.C		
25	N.C	55	0		
26	0	56	N.C		
27	2.5	57	N.C		
28	0	58	N.C		
29	N.C	59	0		
30	0	60	N.C		

IC201
LA6520

Pin No.	Volts
1	0
2	0
3	0
4	0
5	0
6	0
7	1.7
8	1.7
9	-0.7
10	0
11	0
12	8
FIN	-8.2

IC202
LA6520

Pin No.	Volts
1	0.7
2	0.7
3	0.7
4	0
5	0
6	0
7	-0.3
8	-0.3
9	-0.3
10	0
11	0
12	8
FIN	8.2

IC404
NJM4558D-D

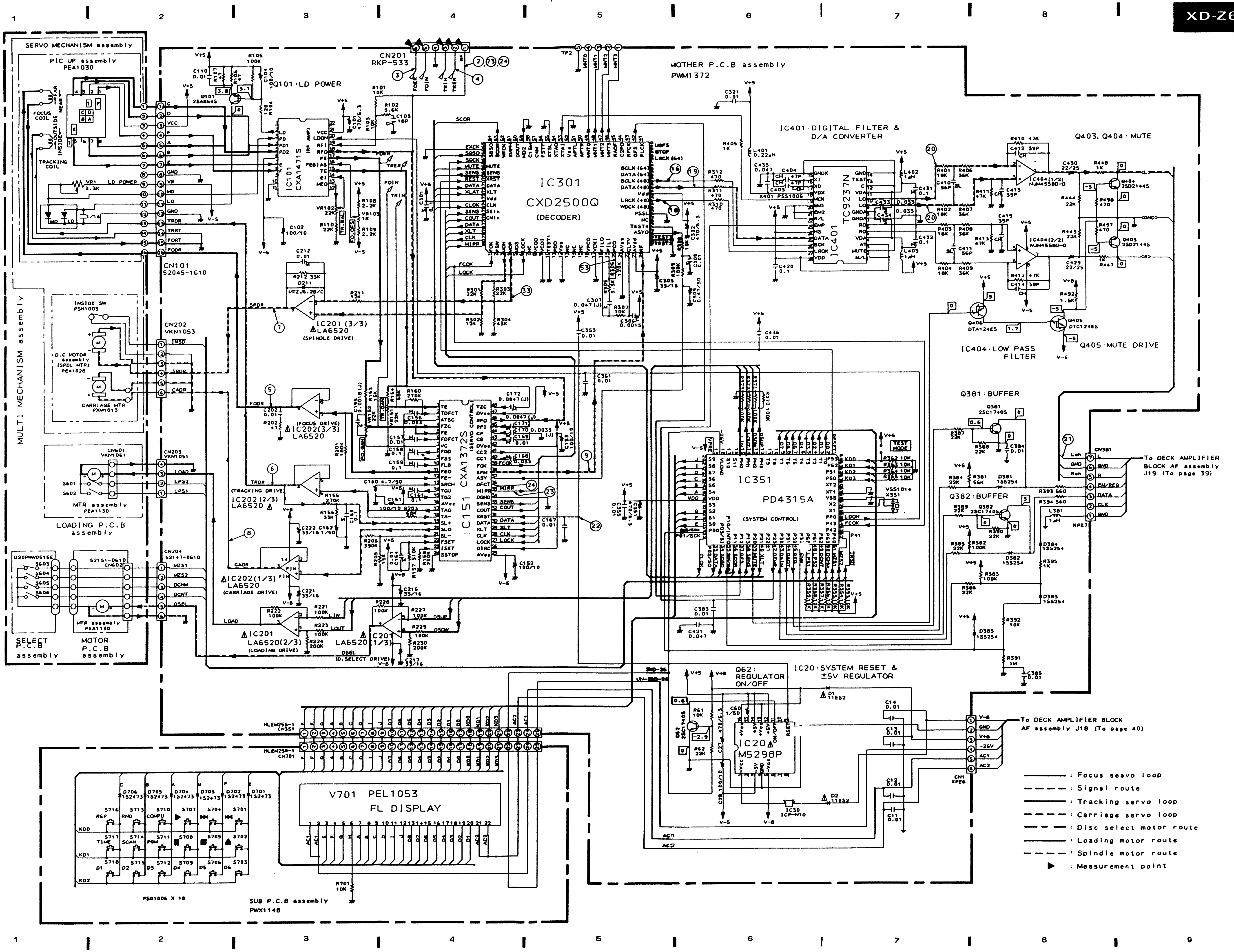
Pin No.	Volts
1	-0.2
2	1
3	1
4	-5
5	1
6	1
7	-0.2
8	5

IC20
M5298P

Pin No.	Volts
1	-8.2
2	N.C
3	-5
4	0
5	-8.2
6	N.C
7	N.C
8	N.C
9	5
10	N.C
11	0.7
12	5
13	8
14	5
15	1.2
16	8

IC40[illegible]
[illegible]C8237N

Pin No	Volts
1	5
2	0
3	5
4	5.5
5	2.5
6	2.5
7	0
8	0
9	2.5
10	2.5
11	5
12	0
13	N.C
14	0
15	0
16	1.9
17	1.9
18	5
19	2
20	0
21	0
22	0
23	0
24	5
25	2.5
26	2.5
27	2.5
28	5


SERVO MECHANISM assembly
PIC UP assembly PEA1030
FOCUS COIL
TRACKING COIL
LD POWER
CN101 52045-1610
Q101 2SA854S
Q101: LD POWER
CN201 RKP-533
IC101 CXA1471S (RF AMP)
MOTHER P.C.B assembly PWM1372
IC301 CXD2500Q (DECODER)
IC401: DIGITAL FILTER & D/A CONVERTER
IC401 TC9237N
X401 PSS1006
Q403, Q404: MUTE
IC404(1/2) NJM4558D-D
IC404(2/2) NJM4558D-D
IC404: LOW PASS FILTER
Q405 DTC124ES
Q406 DTA124ES
Q405: MUTE DRIVE
IC201(3/3) LA6520 (SPINDLE DRIVE)
IC202(3/3) LA6520 (FOCUS DRIVE)
IC202(2/3) LA6520 (TRACKING DRIVE)
IC202(1/3) LA6520 (CARRIAGE DRIVE)
IC201 LA6520(2/3) (LOADING DRIVE)
IC201 LA6520(1/3) (D.SELECT DRIVE)
IC151 CXA1372S (SERVO CONTROL)
IC351 PD4315A (SYSTEM CONTROL)
Q381: BUFFER
Q382: BUFFER
MULTI MECHANISM assembly
INSIDE SW PSH1003
D.C MOTOR assembly (SPDL MTR) PEA1028
CARRIAGE MTR PXM1013
CN202 VKN1053
CN601 VKN1061
CN203 VKN1051
MTR assembly PEA1130
LOADING P.C.B assembly
CN204 52147-0610
SELECT P.C.B assembly
MOTOR P.C.B assembly
CN1 KPE7
To DECK AMPLIFIER BLOCK AF assembly J19 (To page 39)
Q62: REGULATOR ON/OFF
IC20: SYSTEM RESET & ±5V REGULATOR
IC20 M5298P
CN1 KPE6
To DECK AMPLIFIER BLOCK AF assembly J18 (To page 40)
CN351 HLEM25S-1
CN701 HLEM25R-1
V701 PEL1053 FL DISPLAY
SUB P.C.B assembly PWX1148
PSG1006 X 18
REP
RND
COMPU
TIME
SCAN
PGM
: Focus seavo loop
: Signal route
: Tracking servo loop
: Carriage servo loop
: Disc select motor route
: Loading motor route
: Spindle motor route
▶ : Measurement point
1
2
3
4
5
6
7
8
9

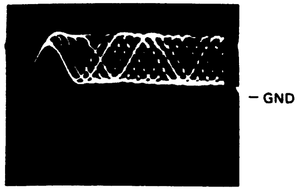
Wave Forms

Note: The encircled numbers denote measuring points in the schematic diagram.

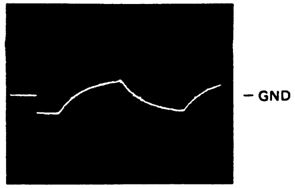
*1 50T-JUMP: After switching to the pause mode, press the manual search key.

*2 FOCUS-IN: Press the key without loading a disc.

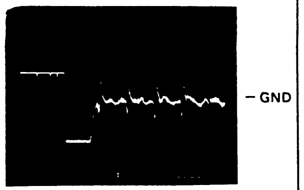
② TP1-Pin 1: PLAY MODE
(RF)
500mV/div 500nsec/div



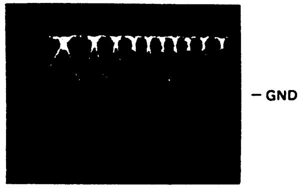
⑤ IC202-Pin 9: FOCUS-IN (*2) MODE
(FODR)
1V/div 200msec/div



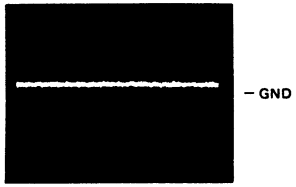
⑦ IC201-Pin 9: TRACK SEARCH MODE
(SPDR)
2V/div 50msec/div



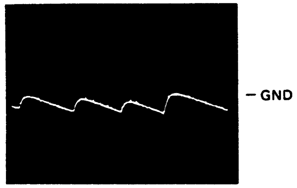
② TP1-Pin 1: TRACK SEARCH MODE
(RF)
500mV/div 200μsec/div



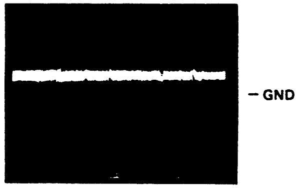
⑤ IC202-Pin 9: PLAY MODE
(FODR)
1V/div 1msec/div



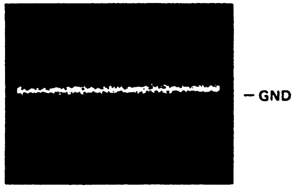
⑧ IC201-Pin 3: PLAY MODE
(CADR)
1V/div 2S/div



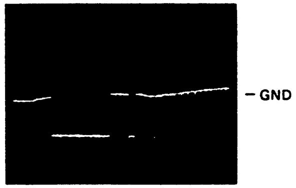
③ TP1-Pin 6: PLAY MODE
(FOER)
100mV/div 10msec/div



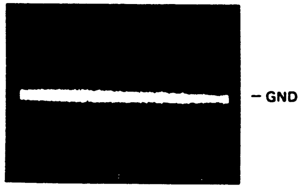
⑥ IC202-Pin 4: PLAY MODE
(TRDR)
500mV/div 1msec/div



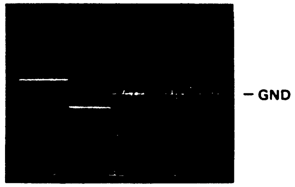
⑧ IC201-Pin 3: TRACK SEARCH MODE
(CADR)
2V/div 200msec/div



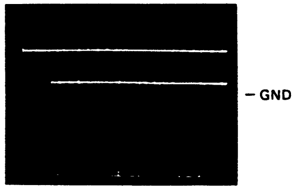
④ TP1-Pin 2: PLAY MODE
(TRER)
1V/div 10msec/div



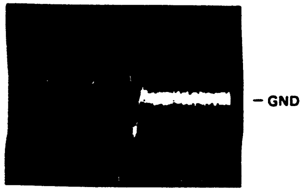
⑥ IC202-Pin 4: 50T-JUMP (*1) MODE
(TRDR)
500mV/div 1msec/div



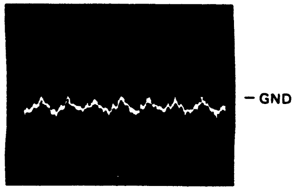
⑨ IC151-Pin 38: PLAY MODE
(EFM)
2V/div 500nsec/div



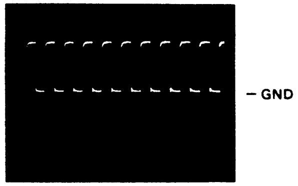
④ TP1-Pin 2: 50T-JUMP (*1) MODE
(TRER)
1V/div 1msec/div



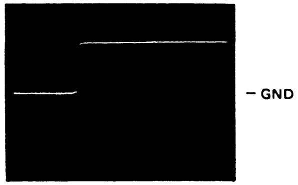
⑦ IC201-Pin 9: PLAY MODE
(SPDR)
1V/div 50msec/div



⑯ IC301-Pin 35: PLAY MODE (1kHz)
(BCLK)
2V/div 500nsec/div

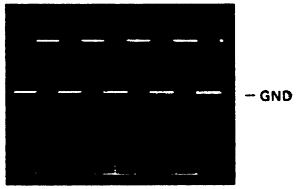


㉒ IC20-Pin 9: POWER SWITCH-ON
(RST)
2V/div 100msec/div

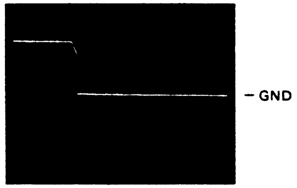


㉖

⑱ IC301-Pin 32: PLAY MODE (1kHz)
(LRCK)
2V/div 10μsec/div

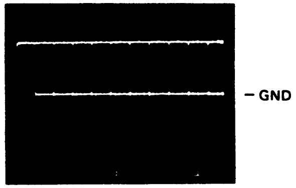


㉒ IC20-Pin 9: POWER SWITCH-OFF
(RST)
2V/div 100msec/div

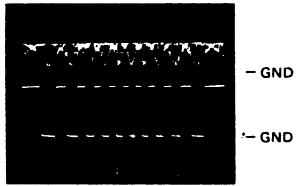


㉗

⑲ IC301-Pin 34: PLAY MODE (1kHz)
(DATA)
2V/div 500nsec/div

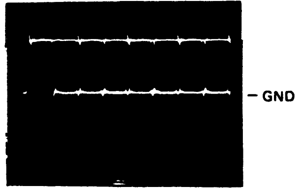


㉓ : TRACK SEARCH MODE
Upper: TP1-Pin 1 (RF) 1V/div
Lower: IC151-Pin 35 (MIRR)
2V/div 200μsec/div

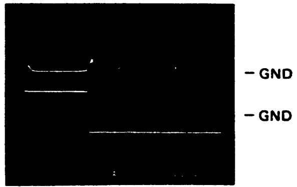


㉘

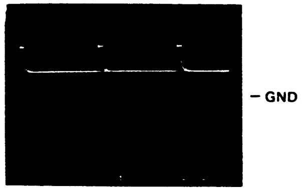
⑳ IC401-Pin 9, Pin 10
(D/A OUT) : PLAY MODE (1kHz)
2V/div 0.1μsec/div



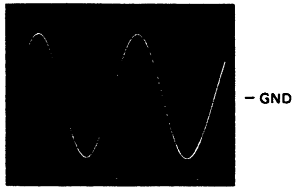
㉔ : PLAY MODE
Upper: TP1-Pin 1 (RF) 1V/div
Lower: IC151-Pin 36 (DFCT)
5V/div 200μsec/div



㉝ IC301-Pin 4: PLAY MODE
(MDP)
2V/div 2μsec/div

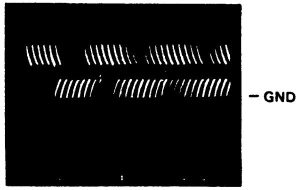


㉑ Pin -OUTPUT: PLAY MODE (1kHz)
1V/div 200μsec/div



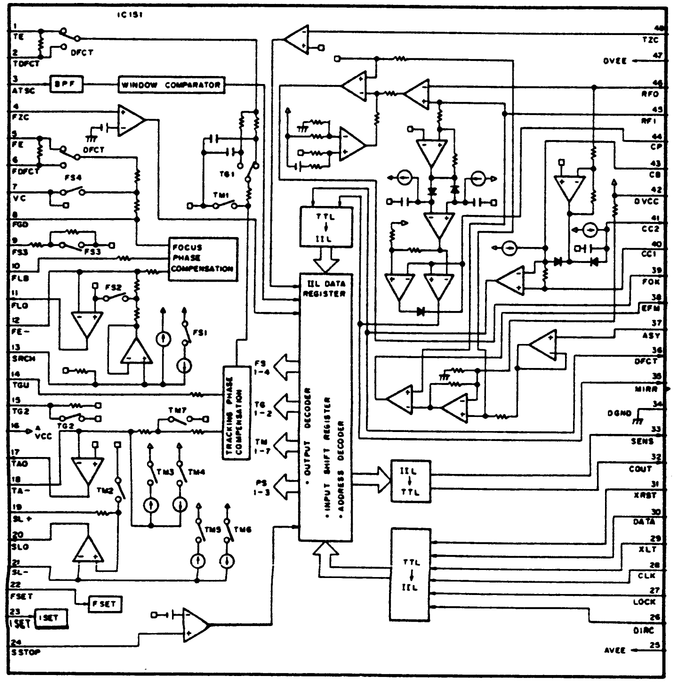
㉕

(53) IC301-Pin 20: PLAY MODE
(PCO)
2V/div 10μsec/div

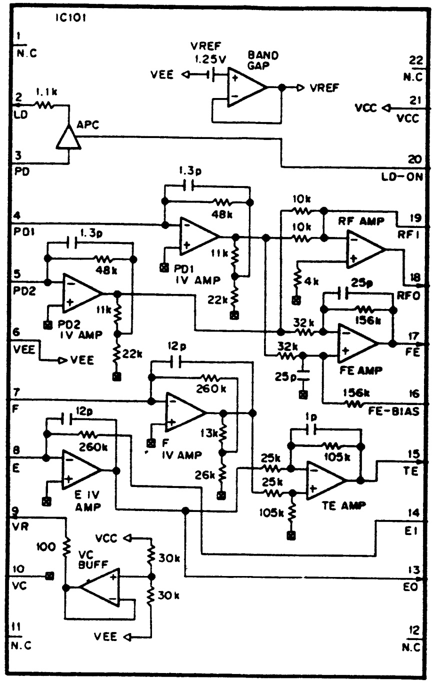


- **IC BLOCK**

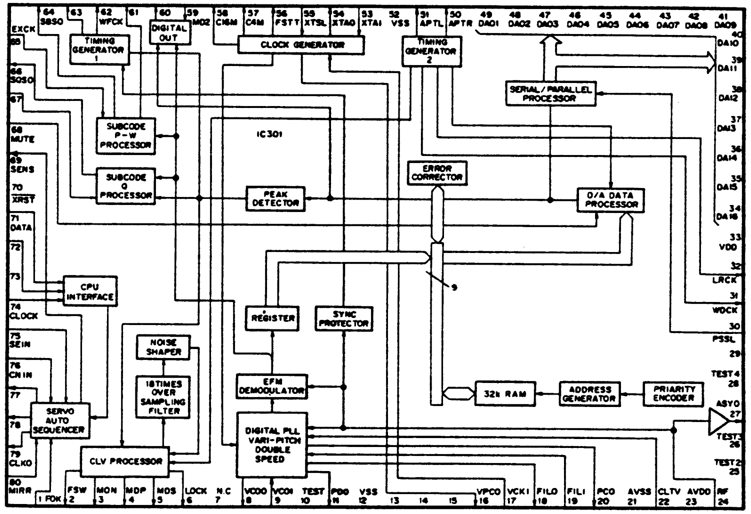
IC151 CXA1372S


IC151
1 TE
2 TDFCT
DFCT
3 ATSC
BPF
WINDOW COMPARATOR
4 FZC
5 FE
6 FDFCT
DFCT
FS4
7 VC
8 FGD
9 FS3
FS3
10 FLB
FOCUS PHASE COMPENSATION
11 FLO
FS2
12 FE-
FS1
13 SRCH
14 TGU
15 TG2
TG2
16 VCC
17 TAO
18 TA-
TM2
TM3
TM4
TM5
TM6
TM7
TG1
TM1
19 SL+
20 SLO
21 SL-
22 FSET
FSET
23 ISET
ISET
24 SSTOP
TRACKING PHASE COMPENSATION
FS 1-4
TG 1-2
TM 1-7
PS 1-3
TTL ↓ IIL
IIL DATA REGISTER
• OUTPUT DECODER
• INPUT SHIFT REGISTER
• ADDRESS DECODER
IIL ↓ TTL
TTL ↓ IIL
48 TZC
47 DVEE
46 RFO
45 RFI
44 CP
43 CB
42 DVCC
41 CC2
40 CC1
39 FOK
38 EFM
37 ASY
36 DFCT
35 MIRR
34 DGND
33 SENS
32 COUT
31 XRST
30 DATA
29 XLT
28 CLK
27 LOCK
26 DIRC
25 AVEE

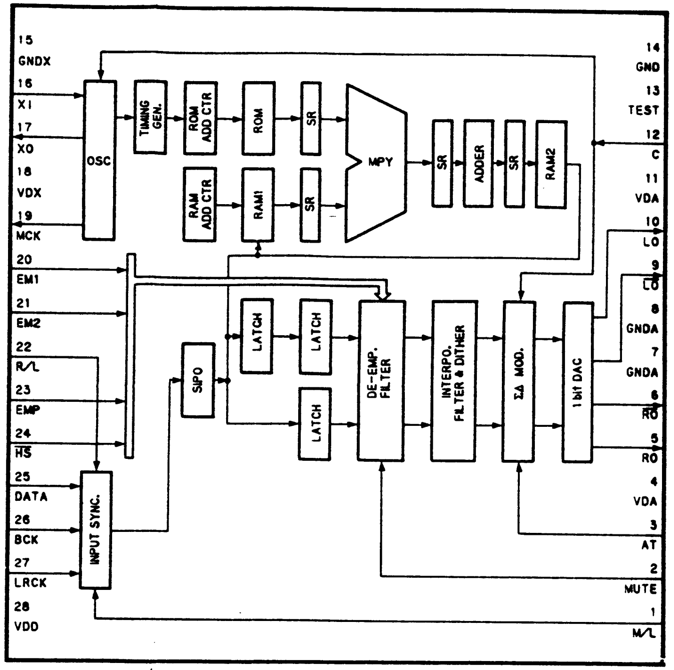
IC101 CXA1471S


IC101
1 N.C
2 LD
1.1k
APC
3 PD
VREF 1.25V
VEE
BAND GAP
VREF
22 N.C
21 VCC
VCC
20 LD-ON
4 PD1
1.3p
48k
11k
22k
PD1 IV AMP
5 PD2
1.3p
48k
11k
22k
PD2 IV AMP
6 VEE
VEE
10k
10k
RF AMP
4k
19 RFI
18 RFO
25p
156k
32k
32k
25p
FE AMP
17 FE
156k
16 FE-BIAS
7 F
12p
260k
13k
26k
F IV AMP
8 E
12p
260k
E IV AMP
1p
105k
25k
25k
105k
TE AMP
15 TE
14 E1
13 EO
9 VR
100
VC BUFF
VCC
30k
30k
VEE
10 VC
11 N.C
12 N.C

IC301 CXD2500Q


64 SBSO
63
62 WFCK
61
60
59 MD2
58 C16M
57 C4M
56 FSTT
55 XTSL
54 XTAO
53 XTAI
52 VSS
51 APTL
50 APTR
49 DA01
48 DA02
47 DA03
46 DA04
45 DA05
44 DA06
43 DA07
42 DA08
41 DA09
EXCK
65
66 SQSO
67
68 MUTE
69 SENS
70 XRST
71 DATA
72
73
74 CLOCK
75 SEIN
76 CNIN
77
78
79 CLKO
80 MIRR
TIMING GENERATOR 1
DIGITAL OUT
CLOCK GENERATOR
TIMING GENERATOR 2
SERIAL / PARALLEL PROCESSOR
SUBCODE P-W PROCESSOR
SUBCODE Q PROCESSOR
IC301
PEAK DETECTOR
ERROR CORRECTOR
D/A DATA PROCESSOR
CPU INTERFACE
REGISTER
SYNC PROTECTOR
9
NOISE SHAPER
18TIMES OVER SAMPLING FILTER
EFM DEMODULATOR
32k RAM
ADDRESS GENERATOR
PRIARITY ENCODER
SERVO AUTO SEQUENCER
CLV PROCESSOR
DIGITAL PLL VARI-PITCH DOUBLE SPEED
40 DA10
39 DA11
38 DA12
37 DA13
36 DA14
35 DA15
34 DA16
33 VDD
32 LRCK
31 WDCK
30 PSSL
29 TEST4
28 ASYO
27 TEST3
26 TEST2
25 RF
24
1 FOK
2 FSW
3 MON
4 MDP
5 MDS
6 LOCK
7 N.C
8 VCOO
9 VCOI
10 TEST
11 PDO
12 VSS
13
14
15
16 VPCO
17 VCKI
18 FILO
19 FILI
20 PCO
21 AVSS
22 CLTV
23 AVDD

IC401 TC9237N


15
GNDX
16
XI
17
XO
18
VDX
19
MCK
20
EM1
21
EM2
22
R/L
23
EMP
24
HS
25
DATA
26
BCK
27
LRCK
28
VDD
OSC
TIMING GEN.
ROM ADD CTR
ROM
SR
RAM ADD CTR
RAM1
SR
MPY
SR
ADDER
SR
RAM2
SIPO
LATCH
LATCH
LATCH
DE-EMP. FILTER
INTERPO. FILTER & DITHER
ΣΔ MOD.
1 bit DAC
INPUT SYNC.
14
GND
13
TEST
12
C
11
VDA
10
LO
9
LO
8
GNDA
7
GNDA
6
RO
5
RO
4
VDA
3
AT
2
MUTE
1
M/L

4. P.C.B 's PARTS LIST

NOTES:

- *Parts without part number cannot be supplied.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω 56 × 10¹ 561........................ RD1/4PS 5 6 1 J
47kΩ 47 × 10³ 473........................ RD1/4PS 4 7 3 J
0.5Ω 0R5.. RN2H 0 R 5 K
1Ω 010.. RS1P 0 1 0 K

Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ 562 × 10¹ 5621........................ RN1/4SR 5 6 2 1 F

Mark	No.	Description	Parts No.
◎ AF ASSEMBLY (AWZ3333)			
SEMICONDUCTORS			
	IC1001	OP−AMP IC	RC4558DXP
	IC151	REGULATOR IC	NJM78M05FA
	IC152	REGULATOR IC	NJM79M05FA
	IC153, 154	REGULATOR IC	MC7812CT
	IC155	IC PROTECTOR	ICP−N75
	IC2001	OP−AMP IC	RC4558DXP
	IC2002	LOGIC IC	TC4066BP
	IC2201	OP−AMP IC	RC4558DXP
	IC2202	LOGIC IC	SN74LS05N
	IC2302	DOLBY−B IC	CXA1100P
	IC301	AUDIO IC	STK4142−2GP
	IC601	OP−AMP IC	RC4558DXP
	IC801	LOGIC IC	MC14052BCP
	IC802	LOGIC IC	TC4066BP
	IC833	OP−AMP IC	RC4558DXP
	Q2001−2004	TRANSISTOR	2SC2458
	Q2005, 2006	TRANSISTOR	2SC2878
	Q2007	TRANSISTOR	RN2203
	Q2008	TRANSISTOR	RN2201
	Q2009, 2201	TRANSISTOR	RN1201
	Q2202	TRANSISTOR	RN2203
	Q2203, 2204	TRANSISTOR	2SC2878
	Q2301−2304	TRANSISTOR	2SC2458
	Q2351	TRANSISTOR	RN2203
	Q401−403	TRANSISTOR	2SC2458
	Q404	TRANSISTOR	RN1203
	Q405	TRANSISTOR	2SC2458
	Q406	TRANSISTOR	2SA1048
	Q601	TRANSISTOR	RN2203
	Q602	N−FET	2SK246
	Q801	TRANSISTOR	RN2203
	Q802	TRANSISTOR	RN1203
	Q803	TRANSISTOR	RN2203

Mark	No.	Description	Parts No.
	D151	DIODE	D3SBA20 (A)
	D152−159	DIODE	1SR139−400
	D161	ZENER DIODE	RD8.2ESB2
	D162	DIODE	1SS252
	D163−166	DIODE	1SR139−400
	D168, 170	DIODE	1SR139−400
	D2301, 2302	DIODE	1SS252
	D401	ZENER DIODE	RD22EB
	D403	DIODE	1SR139−400
	D404	DIODE	1SS252
	D405	ZENER DIODE	RD6.8ESB2
	D406, 601	DIODE	1SS252
RELAY			
	RY401	RELAY	ASR1035
COILS			
	L151	AXIAL INDUCTOR	LAU2R2K
	L2201, 2202	INDUCTOR	LTA392J
	L501, 502	COIL	ATH−133
	F2351−2352	DOLBY FILTER	ATF1064
CAPACITORS			
	C1001−1004	CERAMIC CAPACITOR	CCMSL101J50
	C1005	CERAMIC CAPACITOR	CKSQYB152K50
	C1006	CERAMIC CAPACITOR	CKDYB152K50
	C1007, 1008	CERAMIC CAPACITOR	CKDYB562K50
	C1009−1012	ELECTR.CAPACITOR	CEAS2R2M50
	C1015, 1016	ELECTR.CAPACITOR	CEAS470M16
	C151, 152	ELECTROLYTIC CAPACIT	ACH1109
	C153	ELECTR.CAPACITOR	CEAS222M16
	C154	ELECTR.CAPACITOR	CEAS102M16
	C155, 156	ELECTR.CAPACITOR	CEAS220M16

Mark	No.	Description	Parts No.
	C157	ELECTR.CAPACITOR	CEAS222M25
	C158, 159	ELECTR.CAPACITOR	CEAS220M25
	C160	ELECTR.CAPACITOR	CEAS100M25
	C161	CERAMIC CAPACITOR	CKDYB103K500
	C162	CKA (0.01/AC250V)	ACG1005
	C2007, 2008	MYLOR FILM CAPACITOR	CQMA273J50
	C2009, 2010	MYLOR FILM CAPACITOR	CQMA183J50
	C2011, 2012	CERAMIC CAPACITOR	CKSQYB152K50
	C2201−2204	ELECTR.CAPACITOR	CEAS010M50
	C2205, 2206	CHIP CAPACITOR	CKSQYB222K50
	C2207, 2208	AUDIO FILM CAPACITOR	CFTXA104J50
	C2209, 2210	ELECTR.CAPACITOR	CEAS330M16
	C2211, 2212	CERAMIC CAPACITOR	CKCYX183M25
	C2213, 2214	MYLOR FILM CAPACITOR	CQMA752J50
	C2215, 2216	CERAMIC CAPACITOR	CKSQYB562K50
	C2217, 2218	MYLOR FILM CAPACITOR	CQMA273J50
	C2221, 2222	ELECTR.CAPACITOR	CEAS2R2M50
	C2225, 2226	ELECTR.CAPACITOR	CEAS470M16
	C2303, 2304	ELECTR.CAPACITOR	CEAS010M50
	C2305	ELECTR.CAPACITOR	CEAS220M16
	C2306	ELECTR.CAPACITOR	CEAS220M25
	C2351, 2352	ELECTR.CAPACITOR	CEAS100M50
	C2353, 2354	ELECTR.CAPACITOR	CEASR22M50
	C2355	ELECTR.CAPACITOR	CEAS101M10
	C2356−2359	ELECTR.CAPACITOR	CEAS100M50
	C301, 302	ELECTR.CAPACITOR	CEAS2R2M50
	C303, 304	CERAMIC CAPACITOR	CKMYB331K50
	C305, 306	ELECTR.CAPACITOR	CEAS220M50
	C307, 308	ELECTR.CAPACITOR	CEAS101M25
	C309	ELECTR.CAPACITOR	CEANP220M50
	C310	ELECTR.CAPACITOR	CEANP100M50
	C311, 312	ELECTR.CAPACITOR	CEAS100M50
	C313	ELECTROLYTIC CAPACIT	ACH1143
	C401−404	CERAMIC CAPACITOR	CKCYF473Z50
	C405	ELECTR.CAPACITOR	CEAS221M16
	C406	ELECTR.CAPACITOR	CEAS330M25
	C407	ELECTR.CAPACITOR	CEAS221M16
	C408	ELECTR.CAPACITOR	CEAS100M50
	C501	ELECTR.CAPACITOR	ACH1144
	C601, 602	CERAMIC CAPACITOR	CKMYB471K50
	C603, 604	ELECTR.CAPACITOR	CEAS2R2M50
	C605	CERAMIC CAPACITOR	CKSQYB681K50
	C606	CERAMIC CAPACITOR	CKCYF473Z50
	C831, 832	CERAMIC CAPACITOR	CCMSL101J50
	C856−858	CERAMIC CAPACITOR	CKDYB471K50

RESISTORS

Mark	No.	Description	Parts No.
	VR2201, 2202	VR	VRTB6VS222
	R1013	CHIP RESISTOR	RS1/10S104J
	R159−162	CARBON FILM RESISTOR	RD1/4PM100J
	R163, 164	METAL OXIDE RESISTOR	RS2LMFR22J
	R2003, 2004	CHIP RESISTOR	RS1/10S122J
	R2005, 2006	CHIP RESISTOR	RS1/10S105J
	R2007, 2008	CHIP RESISTOR	RS1/10S332J
	R2009, 2010	CHIP RESISTOR	RS1/10S105J
	R2011	CHIP RESISTOR	RS1/10S472J
	R2014	CHIP RESISTOR	RS1/10S472J
	R2016	CHIP RESISTOR	RS1/10S472J
	R2019, 2020	CHIP RESISTOR	RS1/10S154J
	R2021, 2022	CHIP RESISTOR	RS1/10S222J
	R2207, 2208	CHIP RESISTOR	RS1/10S104J
	R2209, 2210	CHIP RESISTOR	RS1/10S683J
	R2211, 2212	CHIP RESISTOR	RS1/10S223J
	R2213, 2214	CHIP RESISTOR	RS1/10S333J
	R2223, 2224	CHIP RESISTOR	RS1/10S471J
	R2226	CHIP RESISTOR	RS1/10S681J
	R2233, 2234	CHIP RESISTOR	RS1/10S102J
	R2301, 2302	CHIP RESISTOR	RS1/10S273J
	R2303, 2304	CHIP RESISTOR	RS1/10S362J
	R2305, 2306	CHIP RESISTOR	RS1/10S103J
	R2317, 2318	CHIP RESISTOR	RS1/10S222J
	R2351, 2352	CHIP RESISTOR	RS1/10S242J
	R2355, 2356	CHIP RESISTOR	RS1/10S682J
	R2357	CHIP RESISTOR	RS1/10S433J
	R2361, 2362	CHIP RESISTOR	RS1/10S222J
	R2363, 2364	CHIP RESISTOR	RS1/10S273J
	R2366	CHIP RESISTOR	RS1/10S103J
	R305, 306	CARBON FILM RESISTOR	RD1/4PM104J
	R309−312	CARBON FILM RESISTOR	RD1/4PM222J
	R313	CARBON FILM RESISTOR	RD1/4PMFL471J
	R314	CARBON FILM RESISTOR	RD1/4PMFL101J
	R315	CARBON FILM RESISTOR	RD1/4PM102J
	R316, 317	CARBON FILM RESISTOR	RD1/4PMFL222J
	R318	CARBON FILM RESISTOR	RD1/4PMFL101J
	R401, 402	CARBON FILM RESISTOR	RD1/4PM100J
	R409	CARBON FILM RESISTOR	RD1/2PM182J
	R416	METAL OXIDE RESISTOR	RS2LMF181J
	R417	METAL OXIDE RESISTOR	RS2LMF331J

Mark	No.	Description	Parts No.
	R501, 502	CARBON FILM RESISTOR	RD1/4PMFL100J
	R805, 806	CHIP RESISTOR	RS1/10S273J
	R843, 844	CHIP RESISTOR	RS1/10S223J
	R855, 856	CHIP RESISTOR	RS1/10S332J
	R857	CHIP RESISTOR	RS1/10S104J
	R858	CHIP RESISTOR	RS1/10S000J
		Other resistors	RD1/8PM□□□J

OTHERS

Mark	No.	Description	Parts No.
		PIN JACK (4P)	AKB1124
		2P PIN JACK	AKB1146
		SPEAKER TERMINAL 4−P	AKE−109
		JACK	AKN−203
		SOCKET (14P)	AKP1048
	CN10	CONNECTOR (14P)	KPE14
	CN11	CONNECTOR (13P)	KPE13
	CN12	CONNECTOR (10P)	KPE10
	CN14	CONNECTOR (8P)	KPE8
	CN16	CONNECTOR (7P)	KPE7
	CN4	CONNECTOR (13P)	KPE13
	CN5	CONNECTOR (5P)	KPE5

VR ASSEMBLY

SEMICONDUCTORS

Mark	No.	Description	Parts No.
	IC551	OP-AMP IC	RC4558DXP
	IC552	MECHANISM DRIVER IC	TA7291S
	Q551, 552	TRANSISTOR	2SC2878
	Q553	TRANSISTOR	RN2203

CAPACITORS

Mark	No.	Description	Parts No.
	C551, 552	ELECTR.CAPACITOR	CEAS4R7M50
	C553, 554	CHIP CAPACITOR	CCSQCH101J50
	C555, 556	ELECTR.CAPACITOR	CEAS101M16
	C557	ELECTR.CAPACITOR	CEAS220M25
	C558	CERAMIC CAPACITOR	CKSQYF104Z50
	C559	CERAMIC CAPACITOR	CKCYF473Z50

RESISTORS

Mark	No.	Description	Parts No.
	VR551	VARIABLE RESISTOR	ACX1051
	R554	CHIP RESISTOR	RS1/10S000J
	R555, 556	CHIP RESISTOR	RS1/10S104J
	R561	CHIP RESISTOR	RS1/10S000J
	R565, 566	CHIP RESISTOR	RS1/10S102J
		Other resistors	RD1/8PM□□□J

HEAD PHONE ASSEMBLY

CAPACITORS

Mark	No.	Description	Parts No.
	C453	CERAMIC CAPACITOR	CKDYF473Z50

RESISTORS

Mark	No.	Description	Parts No.
	R451, 452	METAL OXIDE RESISTOR	RS1LMF331J
	R453	CARBONFILM RESISTOR	RD1/8PM100J

OTHERS

Mark	No.	Description	Parts No.
		JACK (HEAD PHONE)	AKN1010
	CN1	CONNECTOR (5P)	KPC5

TRANS CONNECT ASSEMBLY

No parts are supplied with the TRANS CONNECT ASSEMBLY.

⊙ DISPLAY ASSEMBLY (AWZ3350)

SEMICONDUCTORS

Mark	No.	Description	Parts No.
	IC1501	LOGIC IC	SN74LS05N
	IC1502	LOGIC IC	SN74LS03N
	IC1651	SYSTEM CONT μ−COM	PD5147B
	IC1652	RESET IC	M51951BSL
	IC1701−1703	OP−AMP IC	RC4558DXP
	IC1704	GEQ FL DRIVER IC	LC7566
	IC701, 702	AUDIO IC	BA3812L
	Q1501	TRANSISTOR	RN1201
	Q1503, 1504	TRANSISTOR	RN1201
	Q1505−1507	TRANSISTOR	RN1203
	Q1508, 1509	TRANSISTOR	RN2201
	Q1601	TRANSISTOR	RN2204
	Q1602	TRANSISTOR	RN1203
	Q1603	TRANSISTOR	RN2204
	Q1604	TRANSISTOR	2SA1515
	Q1605	TRANSISTOR	RN1203
	Q1606	TRANSISTOR	2SA1515
	Q1607	TRANSISTOR	RN1203
	Q1608	TRANSISTOR	2SA1515
	Q1609	TRANSISTOR	RN1203
	Q1610	TRANSISTOR	2SA1515
	Q1611	TRANSISTOR	RN1203
	Q1701	TRANSISTOR	RN1201
	D1501 - 1504	LED (GREEN)	AEL1130
	D1505	LED (RED)	AEL1119
	D1506, 1507	LED (RED)	AEL1126
	D1509	LED	AEL1128
	D1510	LED (GREEN)	AEL1129

Mark	No.	Description	Parts No.
	D1511−1516	LED (RED)	AEL1108
	D1517	DIODE	1SS252
	D1518, 1519	LED (RED)	AEL1065
	D1520	DIODE	1SS252
	D1537−1539	DIODE	1SS252
	D1601−1617	DIODE	1SS252
	D1651−1657	DIODE	1SS252
	D1660−1664	DIODE	1SS252
	D1701−1713	DIODE	1SS252

SWITCHES

Mark	No.	Description	Parts No.
	S1504, 1505	SWITCH	ASG1034
	S1507	SWITCH	ASG1034
	S1510−1514	SWITCH	ASG1034
	S1516−1519	SWITCH	ASG1034
	S1522−1525	SWITCH	ASG1034
	S1528	SWITCH	ASD1012

COIL

Mark	No.	Description	Parts No.
	L1651	AXIAL INDUCTOR	LAU220K

CAPACITORS

Mark	No.	Description	Parts No.
	C1601	ELECTR.CAPACITOR	CEAS470M16
	C1602	ELECTR.CAPACITOR	CEASR33M50
	C1651	CERAMIC CAPACITOR	CKDYX473M16
	C1652	ELECTR.CAPACITOR	CEAS101M16
	C1653	CERAMIC CAPACITOR	CKCYF473Z50
	C1655−1658	CERAMIC CAPACITOR	ACG1020
	C1659	ELECTR.CAPACITOR	CEAS010M50
	C1660	CERAMIC CAPACITOR	CCDSL100D50
	C1701	ELECTR.CAPACITOR	CEASR22M50
	C1702, 1703	CERAMIC CAPACITOR	CKDYX333M25
	C1704	ELECTROLYTIC CAPACIT	CEASR15M50
	C1705, 1706	CERAMIC CAPACITOR	CKDYX103M16
	C1707	ELECTROLYTIC CAPACIT	CEJAR22M50
	C1708, 1709	CERAMIC CAPACITOR	CKCYB332K50
	C1710	ELECTR.CAPACITOR	CEASR22M50
	C1711, 1712	CERAMIC CAPACITOR	CKMYB102K50
	C1713	ELECTR.CAPACITOR	CEASR22M50
	C1714, 1715	CERAMIC CAPACITOR	CKMYB331K50
	C1716	ELECTR.CAPACITOR	CEASR22M50
	C1717	CERAMIC CAPACITOR	CKMYB152K50
	C1718, 1719	ELECTR.CAPACITOR	CEAS010M50
	C701, 702	ELECTR.CAPACITOR	CEAS4R7M50
	C703, 704	CERAMIC CAPACITOR	CKMYB331K50
	C705, 706	CERAMIC CAPACITOR	CCDSL101J50
	C707, 708	CERAMIC CAPACITOR	CKDYX393M16
	C709, 710	ELECTR.CAPACITOR	CEASR68M50
	C711, 712	CERAMIC CAPACITOR	CKDYX183M16
	C713, 714	ELECTROLYTIC CAPACIT	CEJAR15M50
	C715, 716	CERAMIC CAPACITOR	CGMYX392M25
	C717, 718	CERAMIC CAPACITOR	CKDYX683M16
	C719, 720	CERAMIC CAPACITOR	CGMYB182M50

Mark	No.	Description	Parts No.
	C721, 722	CERAMIC CAPACITOR	CKDYX153M16
	C723, 724	CERAMIC CAPACITOR	CKMYB391K50
	C725, 726	CERAMIC CAPACITOR	CGMYX682M25
	C727, 728	ELECTR.CAPACITOR	CEAS470M16
	C729, 730	ELECTROLYTIC CAPACIT	CEJA470M16
	C731, 732	ELECTROLYTIC CAPACIT	CEJA4R7M50

RESISTORS

Mark	No.	Description	Parts No.
	VR1601, 1602	VR	VRTM6V203
	VR1603	VR	VRTM6V103
	VR701−710	VR	ACU1034
	R1515	CARBON FILM RESISTOR	RD1/2PM6R8J
	R1662	RESISTOR ARRAY (3.3k)	RA8T332J
	R1736	RESISTOR ARRAY (100k)	RA8T104J
	R1737	RESISTOR ARRAY (100k)	RA13T104J
		Other resistors	RD1/8PM□□□J

OTHERS

Mark	No.	Description	Parts No.
		REMOTE RECEIVER UNIT	AXX1010
	V1701	FL TUBE	AAV1117
	X1651	CERAMIC RESONATOR	ASS1025
	CN8	CONNECTOR (15P)	KPE15

1 MECHA SW ASSEMBLY

SWITCHES

Mark	No.	Description	Parts No.
	S1551−1555	SWITCH	ASG1034

2 MECHA SW ASSEMBLY

SWITCHES

Mark	No.	Description	Parts No.
	S1556−1560	SWITCH	ASG1034

⊙ SUB TRANS ASSEMBLY (AWR1056)

SEMICONDUCTORS

Mark	No.	Description	Parts No.
	IC101	REGULATOR IC	NJM78M56FA
	IC102	REGULATOR IC	UPC78M12AHF
	Q101	TRANSISTOR	2SC2458
	Q102	TRANSISTOR	2SB560
	D101	ZENER DIODE	RD10ESB2
	D102	ZENER DIODE	RD30ESB2
	D103−106	DIODE	1SR139−400
	D107, 109	DIODE	1SS252

RELAY

Mark	No.	Description	Parts No.
	RY101	RELAY	ASR1027

Mark	No.	Description	Parts No.

TRANSFORMER

Mark	No.	Description	Parts No.
⚠	T101	POWER TRANSFORMER	ATT1149

CAPACITORS

Mark	No.	Description	Parts No.
	C101	ELECTR.CAPACITOR	CEAS222M25
	C102	ELECTR.CAPACITOR	CEAS221M50
	C103, 104	ELECTR.CAPACITOR	CEAS470M16
	C105	ELECTR.CAPACITOR	CEAS470M50
	C106	ELECTR.CAPACITOR	CEAS220M50
	C107	ELECTR.CAPACITOR	CEAS470M16

RESISTORS

Mark	No.	Description	Parts No.
	R101	CARBONFILM RESISTOR	RD1/4PMF392J
	R102	CARBONFILM RESISTOR	RD1/8PM562J
	R109	CARBONFILM RESISTOR	RD1/8PM222J

1 MECHA ASSEMBLY

CAPACITORS

Mark	No.	Description	Parts No.
	C2001, 2002	CERAMIC CAPACITOR	CKMYB391K50
	C2005, 2006	AUDIO FILM CAPACITOR	CFTXA223J50
	C2007, 2008	ELECTR.CAPACITOR	CEAS4R7M50
	C2009, 2010	ELECTR.CAPACITOR	CEAS470M10

RESISTORS

Mark	No.	Description	Parts No.
	VR2001, 2002	VR	VRTM6H202
		Other resistors	RD1/8PM□□□J

2 MECHA ASSEMBLY

SEMICONDUCTORS

Mark	No.	Description	Parts No.
	IC2001, 2021	OP-AMP IC	RC4558DXP
	Q2021, 2022	N-FET	2SK373
	Q2251	TRANSISTOR	RN1201
	Q2252	TRANSISTOR	2SA1515
	Q2253, 2254	TRANSISTOR	2SC3377
	Q2255	TRANSISTOR	2SC2458
	D2021−2026	DIODE	1SS252

COILS & TRANSFORMER

Mark	No.	Description	Parts No.
	L2204, 2205	INDUCTOR	LTA822J
	T2251	OSC TRANSFORMER	ATX−043

CAPACITORS

Mark	No.	Description	Parts No.
	C2021, 2022	CERAMIC CAPACITOR	CCMSL100D50
	C2023, 2024	CERAMIC CAPACITOR	CKMYB391K50
	C2027, 2028	AUDIO FILM CAPACITOR	CFTXA223J50
	C2029, 2030	ELECTR.CAPACITOR	CEAS4R7M50
	C2031, 2032	ELECTR.CAPACITOR	CEAS470M10

Mark	No.	Description	Parts No.
	C2219, 2220	CERAMIC CAPACITOR	CCDSL271K500
	C2223, 2224	CERAMIC CAPACITOR	CKDYB681K50
	C2251	ELECTR.CAPACITOR	CEAS470M16
	C2252, 2253	CERAMIC CAPACITOR	CGMYX103M16
	C2254	CERAMIC CAPACITOR	CKMYB221K50
	C2255	MYLOR FILM CAPACITOR	CQMA153K50
	C2256	CERAMIC CAPACITOR	CKMYB681K50
	C2257	MYLOR FILM CAPACITOR	CQMA123K250
	C2258	ELECTR.CAPACITOR	CEAS4R7M50
	C2259, 2260	CERAMIC CAPACITOR	CCCSL101K500
	C2261	MYLOR FILM CAPACITOR	CQMA562K400
	C2262	CQPA (2000p/630V)	ACE1020
	C2263	ELECTR.CAPACITOR	CEAS100M50

RESISTORS

Mark	No.	Description	Parts No.
	VR2021, 2022	VR	VRTM6V202
	VR2251, 2252	VR	VRTM6H204
	R2253	CARBON FILM RESISTOR	RD1/2PM360J
		Other resistors	RD1/8PM□□□J

⊙ MOTHER P.C.B ASSEMBLY (PWM1372)

SEMICONDUCTORS

Mark	No.	Description	Parts No.
	IC101	PRE AMP IC	CXA1471S
	IC151	SERVO IC	CXA1372S
⚠	IC20	REGULATOR IC	M5298P
⚠	IC201, 202	POWER OP−AMP IC	LA6520
⚠	IC30	IC PROTECTOR	ICP−N10
	IC301	EFM DEMODULATION IC	CXD2500Q
	IC351	MICROCOMPUTER IC	PD4315A
	IC401	8FS DF DA CONVERTER IC	TC9237N
	IC404	OP−AMP IC	NJM4558D−D
	Q101	TRANSISTOR	2SA854S
	Q381, 382	TRANSISTOR	2SC1740S
	Q403, 404	TRANSISTOR	2SD2144S
	Q405	TRANSISTOR	DTC124ES
	Q406	TRANSISTOR	DTA124ES
	Q62	TRANSISTOR	2SC1740S
⚠	D1, 2	DIODE	11ES2
	D211	ZENNER DIODE	MTZJ6.2B/C
	D381−385	DIODE	1SS254

COILS

Mark	No.	Description	Parts No.
	L381	AXIAL INDUCTOR	LAU010K
	L401	AXIAL COIL	LAUR22K
	L402, 403	AXIAL INDUCTOR	LAU010K

CAPACITORS

Mark	No.	Description	Parts No.
	C101	ELECTROLYTIC CAPACIT	CEAS471M6R3
	C102	ELECTR.CAPACITOR	CEAS101M10
	C103	CERAMIC CAPACITOR	CCCCH180J50
	C104	ELECTR.CAPACITOR	CEAS101M10
	C110	CERAMIC CAPACITOR	CKCYF103Z50
	C11–14	CERAMIC CAPACITOR	CKCYF103Z50
	C151–153	ELECTR.CAPACITOR	CEAS101M10
	C155	MYLOR FILM CAPACITOR	CQMA182J50
	C156	MYLOR FILM CAPACITOR	CQMA333K50
	C157	MYLOR FILM CAPACITOR	CQMA103K50
	C158, 159	MYLOR FILM CAPACITOR	CQMA104K50
	C160	ELECTR.CAPACITOR	CEAS4R7M50
	C161	MYLOR FILM CAPACITOR	CQMA104K50
	C162	ELECTR.CAPACITOR	CEAS010M50
	C163	MYLOR FILM CAPACITOR	CQMA104K50
	C164	MYLOR FILM CAPACITOR	CQMA103K50
	C167	CERAMIC CAPACITOR	CKCYF103Z50
	C168	MYLOR FILM CAPACITOR	CQMA333K50
	C169	MYLOR FILM CAPACITOR	CQMA103K50
	C170	MYLOR FILM CAPACITOR	CQMA332J50
	C171	MYLOR FILM CAPACITOR	CQMA472J50
	C172	MYLOR FILM CAPACITOR	CQMA472K50
	C202	CERAMIC CAPACITOR	CKCYF103Z50
	C212	MYLOR FILM CAPACITOR	CQMA103K50
	C216, 217	ELECTR.CAPACITOR	CEAS330M16
	C221, 222	ELECTR.CAPACITOR	CEAS330M16
	C27	ELECTROLYTIC CAPACIT	CEAS471M6R3
	C28	ELECTR.CAPACITOR	CEAS101M10
	C301	MYLOR FILM CAPACITOR	CQMA104K50
	C302	ELECTROLYTIC CAPACIT	CEAS471M6R3
	C303	ELECTR.CAPACITOR	CEAS330M16
	C[illegible]	CERAMIC CAPACITOR	CKCYB152K50
	C[illegible]	MYLOR FILM CAPACITOR	CQMA473J50
	C308	MYLOR FILM CAPACITOR	CQMA103K50
	C309	ELECTR.CAPACITOR	CEASR47M50
	C321	CERAMIC CAPACITOR	CKCYF103Z50
	C351	ELECTROLYTIC CAPACIT	CEAS471M6R3
	C353, 355	CERAMIC CAPACITOR	CKCYF103Z50
	C361	CERAMIC CAPACITOR	CKCYF103Z50
	C383–385	CERAMIC CAPACITOR	CKCYF103Z50
	C403, 404	CERAMIC CAPACITOR	CCCCH470J50
	C410, 411	CERAMIC CAPACITOR	CCCSL560J50
	C412–415	CERAMIC CAPACITOR	CCCCH390J50
	C420	MYLOR FILM CAPACITOR	CQMA104K50
	C421	CERAMIC CAPACITOR	CKCYF473Z50
	C429, 430	ELECTR.CAPACITOR	CEAS220M25
	C431, 432	MYLOR FILM CAPACITOR	CQMA104K50
	C433, 434	MYLOR FILM CAPACITOR	CQMA333K50
	C435	CERAMIC CAPACITOR	CKCYF473Z50
	C436	CERAMIC CAPACITOR	CKCYF103Z50
	C60	ELECTR.CAPACITOR	CEAS010M50

RESISTORS

Mark	No.	Description	Parts No.
	VR102	VR	RCP1046
	VR103	VR	RCP1044
	VR151, 152	VR	RCP1046
		Other resistors	RD1/6PM□□□J

OTHERS

Mark	No.	Description	Parts No.
	CN1	CONNECTOR (6P)	KPE6
	CN101	CONNECTOR	52045 1610
	CN351	CONNECTOR	HLEM25S-1
	CN381	CONNECTOR (7P)	KPE7
	X351	CERAMIC RESONATOR	VSS1014
	X401	XTAL RES (OSC)	PSS1006

⊙ SUB P.C.B ASSEMBLY (PWX1148)

SEMICONDUCTORS

Mark	No.	Description	Parts No.
	D701–706	DIODE	1S2473

SWITCHES

Mark	No.	Description	Parts No.
	S701–718	SWITCH	PSG1006

RESISTORS

Mark	No.	Description	Parts No.
	R701	CARBON FILM RESISTOR	RD1/4PM103J

OTHERS

Mark	No.	Description	Parts No.
	CN701	CONNECTOR	HLEM25R-1
	V701	FL INDICATOR TUBE	PEL1053

LOADING P.C.B ASSEMBLY

SWITCHES

Mark	No.	Description	Parts No.
	S601, 602	PUSH SWITCH	DSG1016

SELECT P.C.B ASSEMBLY

SWITCHES

Mark	No.	Description	Parts No.
	S603–606	PUSH SWITCH	DSG1016

MOTOR P.C.B ASSEMBLY

No parts are supplied with the MOTOR PCB assembly.

5. ADJUSTMENTS

5 ECK AMP BLOCK

Adjustment of Mechanical section

- Test tape : STD-301 (3 kHz 30 min)
- Setting of double speed mode : Short-circuit TP1601 and TP1602 of the DISPLAY assembly. To release the mode, disconnect the short circuit.

1. Adjustment of tape speed

No.	Mode	Input signal & Test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1	PLAY	Playback the STD-301 tape to 3 kHz.	Deck I	DISPLAY assembly VR1601	AF assembly JP-L (Lch)	Press the PLAY button and adjust the frequency to 3010 Hz ±10 Hz. Make sure that the wow and flutter is within 0.2 %.	
2	PLAY (Double speed mode)			—		Press the PLAY button in double speed mode and confirm that the frequency is 6000 Hz ±1000 Hz. Note down the figure.	Release the double speed mode after adjustment.
3	PLAY (Double speed mode)		Deck II	DISPLAY assembly VR1603	AF assembly JP-R (Rch)	Press the PLAY button in double speed mode and adjust the frequency to be within ±30 Hz of the figure recorded at step No. 2.	Release the double speed mode after adjustment.
4	PLAY			DISPLAY assembly VR1602		Press the PLAY button and adjust the frequency to 3010 Hz ±10 Hz. Make sure that the wow and flutter is within 0.2 %.	

Adjustment of Electric section

■ Check and conduct the following before adjusting the electric section.

1. Adjustment of tape speed has been completed.
2. Clean and demagnetize the head using a head eraser.
3. When measured, the level should be 0 dBV = 1 Vrms.
4. Use side A of the specified tape for adjustment.
   STD-331B: For adjustment of playback system.
   STD-630: NORMAL blank tape
5. Prepare the following measuring devices:
   AC millivoltmeter, Low-frequency oscillator, Attenuator, Oscilloscope
6. Adjust both L and R channels, unless specified otherwise.
7. Set the DOLBY NR switches to OFF, unless specified otherwise.
8. Warm up the unit for several minutes before adjustment. Especially before adjusting the frequency characteristics of recording and playback, warm up for 3 to 5 minutes in REC/PLAY mode.
9. Make sure to follow the proper order of the adjustment procedure. Any change in the order may cause an improper result.
10. The AF assembly contains JP-L and JP-R.(See Fig.5−4)

List of Adjustment

Deck I

1. Head azimuth adjustment
2. Playback level adjustment

Deck II

1. Head azimuth adjustment
2. Playback level adjustment
3. Bias oscillation frequency adjustment
4. Recording level adjustment
5. Adjustment of frequency characteristics of recording / playback

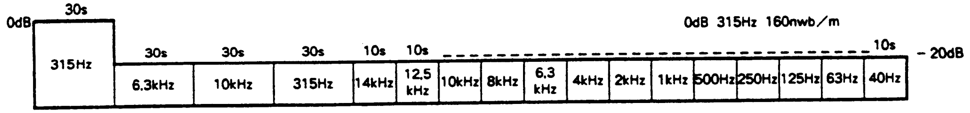


Fig. 5−1 Test tape STD-331B

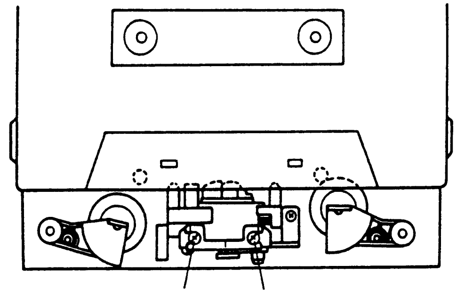
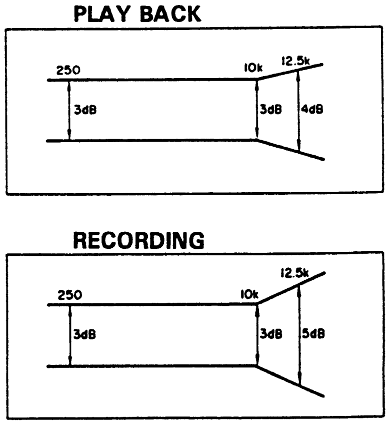


Fig. 5−2 Head azimath adjustment


PLAY BACK

RECORDING

Fig. 5−3 Frequency characteristics

• Head Adjustment of Deck I

- Deck I is provided with an automatic tape selector mechanism.
- Note: Do not switch over FWD and REV while the screw driver is inserted.

1. Head Azimuth Adjustment

Procedure	Tape selector	Mode	Input signal/test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1	NORM	PLAY	Playback the test tape STD-331B (10 kHz, −20 dB).	Head azimuth adjustment screw (Fig. 5-2)	JP-L (Lch) JP-R (Rch)	Maximum playback signal level	Lock the screw with screw lock after completing adjustment.

2. Playback Level Adjustment

- Be sure to make a careful adjustment, as the adjustment determines the DOLBY NR level for playback.

Procedure	Tape selector	Mode	Input signal/test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1	NORM	PLAY	Playback the test tape STD-331B (315 Hz, 0 dB).	1 Mecha assembly VR2001 (Lch) VR2002 (Rch)	JP-L (Lch) JP-R (Rch)	−5.2 dBv	

• Head Adjustment of Deck II

- Deck II is provided with an automatic tape selector mechanism.
- Note: Do not switch over FWD and REV while the screw driver is inserted.

1. Head Azimuth Adjustment

Pro-cedure	Tape selector	Mode	Input signal/test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1	NORM	PLAY	Playback the test tape STD-331B (10 kHz, −20 dB).	Head azimuth adjustment screw (Fig. 5-2)	JP-L (Lch) JP-R (Rch)	Maximum playback signal level	Lock the screw with screw lock after completing adjustment.

2. Playback Level Adjustment

- Be sure to make a careful adjustment, as the adjustment determines the DOLBY NR level for playback.

Pro-cedure	Tape selector	Mode	Input signal/test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1	NORM	PLAY	Playback the test tape STD-331B (315 Hz, 0 dB).	2 Mecha assembly VR2021 (Lch) VR2022 (Rch)	JP-L (Lch) JP-R (Rch)	−5.2 dBv	

3. Bias oscillation frequency adjustment

Pro-cedure	Tape selector	Mode	Input signal/test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1	NORM	REC	Load the test tape STD-630 and set to record mode.	2 Mecha assembly T2251	Area between Ⓐ and Ⓑ (2 Mecha assembly) shown in Fig.5-6.	The oscillation frequency is 105 kHz ±5 kHz.	

4. Recording Level Adjustment

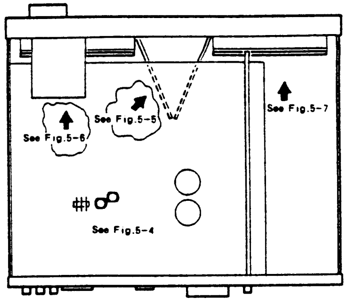
Pro-cedure	Tape selector	Mode	Input signal/test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1	NORM	REC	Apply a signal of 315 Hz to the LD/VCR input terminal and set the function to "LD/VCR".	Input signal level	JP-L (Lch) JP-R (Rch)	−5.2 dBv	
2	NORM	REC / PLAY	Record and playback the test tape STD-630 (315 Hz).	AF assembly VR2201 (Lch) VR2202 (Rch)	JP-L (Lch) JP-R (Rch)	Repeat the recording/playback, and make adjustment so that the playback level of 315 Hz is −5.2 dBv.	

5. Adjustment of frequency characteristics of recording/playback

- As this procedure is for adjustment of the recording bias, be careful not to increase the distortion by under-adjusting the bias.

Pro-cedure	Tape selector	Mode	Input signal/test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1	NORM	REC	Apply a signal of 315 Hz to the LD/VCR input terminal and set the function to "LD/VCR".	Input signal level	JP-L (Lch) JP-R (Rch)	−25.2 dBv	
2	NORM	REC / PLAY	Record and playback the test tape STD-630 (315 Hz and 10 kHz).	2 Mecha assembly VR2251 (Lch) VR2252 (Rch)	JP-L (Lch) JP-R (Rch)	Repeat the recording/playback, and make adjustment so that the playback level of 10 kHz remains 0 ±0.5 dB in relation to 315 Hz.	

• Adjustment location



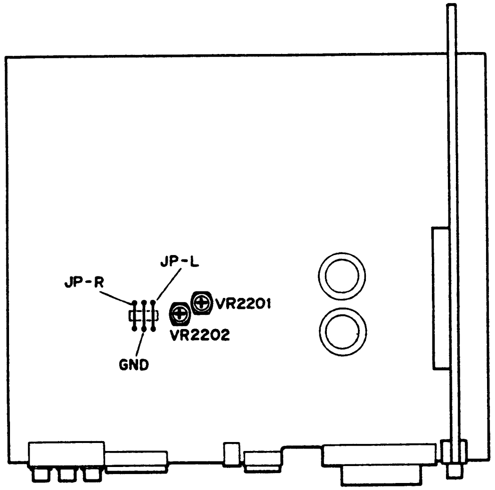
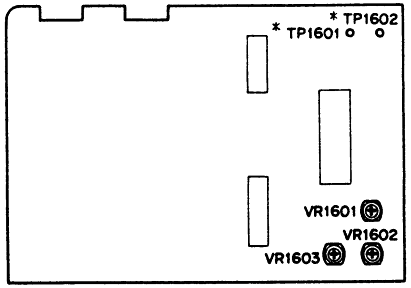


Fig. 5−4 AF assembly



• :TP1601 and TP1602 are not indicated on the P.C.Board.

Fig. 5−5 DISPLAY assembly

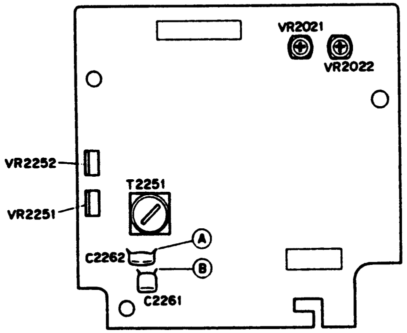


Fig. 5−6 2 Mecha assembly

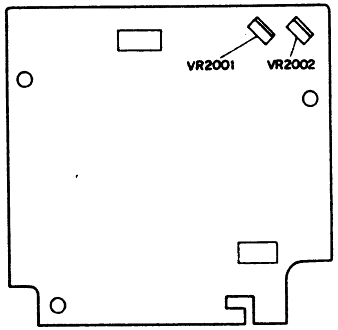


Fig. 5−7 1 Mecha assembly

5.2 CD BLOCK

If a disc player is adjusted incorrectly or inadequately, it may malfunction or not work at all even though there is nothing at all wrong with the pick up or the circuitry. Adjust correctly following the adjustment procedure.

1. Adjustment items/verification item and order

Step	Item	Test point	Adjustment location
1	Focus offset adjustment	TP1, Pin 6(FCS.ERR)	VR103(FCS.OFS)
2	Grating adjustment	TP1, Pin 2(TRK.ERR)	Grating adjustment slit
3	Tracking error balance adjustment	TP1, Pin 2(TRK.ERR)	VR102(TRK. BAL)
4	Pick up radial/tangential direction tilt adjustment	TP1, Pin 1(RF)	Radial tilt adjustment screw, Tangential tilt adjustment screw
5	RF level adjustment (RF level)	TP1, Pin 1(RF)	VR1(RF level)
6	Focus servo loop gain adjustment	TP1, Pin 5(FCS.IN) TP1, Pin6(FCS.ERR)	VR152(FCS.GAN)
7	Tracking servo loop gain adjustment	TP1, Pin 3(TRK.IN) TP1, Pin 2(TRK.ERR)	VR151(TRK.GAN)
8	Focus error signal verification	TP1, Pin 6(FCS.ERR)	—

- Abbreviation table

FCS.ERR	:	Focus Error
FCS.OFS	:	Focus Offset
TRK.ERR	:	Tracking Error
TRK.BAL	:	Tracking Balance
FCS.IN	:	Focus In
TRK.IN	:	Tracking In

2. Measuring instruments and tools

1. Dual trace oscilloscope (10 : 1 probe)
2. Low-frequency oscillator
3. Test disc (YEDS-7)
4. Low-pass filter (39 kΩ+ 0.001μF)
5. Resistor (100 kΩ)
6. Standard tools

3. Test point and adjustment variable resistor positions

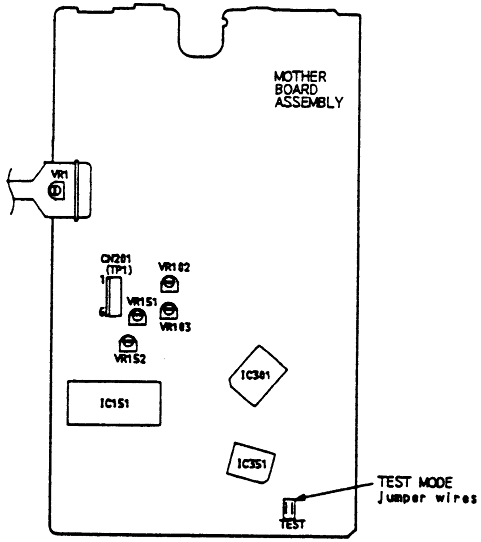


Figure 1 Adjustment Locations

4. Notes

1. Use a 10 : 1 probe for the oscilloscope.
2. All the knob positions (settings) for the oscilloscope in the adjustment procedures are for when a 10 : 1 probe is used.

5. Test mode

These models have a test mode so that the adjustments and checks required for service can be carried out easily. When these models are in test mode, the keys on the front panel work differently from normal. Adjustments and checks can be carried out by operating these keys with the correct procedure. For these models, all adjustments are carried out in test mode.

[Setting these models to test mode]

How to set this model into test mode.

1. Turn off the power switch.
2. Short the test mode jumper wires. (See Figure 1.)
3. Turn on the power switch.

When the test mode is set correctly, the display is different from what it usually is when the power is turned on. If the display is still the same as usual, test mode has not been set correctly, so repeat Steps 1-3.

[Release from test mode]

Here is the procedure for releasing test mode :
1. Press the STOP key and stop all operations.
2. Turn off the power switch on the fromt panel.

[Operations of the keys in test mode]

Code	Key name	Function in test mode	Explanation
	PGM (PROGRAM)	Focus servo close	The laser diode is lit up and the focus actuator is lifted up, then lowered slowly and the focus servo is closed at the point where the objective lens is focused on the disc. With the player in this state, if you lightly rotate the stopped disc by hand, you can hear the sound the focus servo. If you can hear this sound, the focus servo is operating correctly. If you press this key with no disc mounted, the laser diode lights up, the focus actuator is pulled up, then the actuator is lowered and raised twice and returned to its original position.
▷	PLAY	Spindle servo On	Starts the spindle motor in the clockwise direction and when the disc rotation reaches the prescribed speed (about 500 rpm at the inner periphery), sets the spindle servo in a closed loop. Be careful. Pressing this key when there is no disc mounted makes the spindle motor run at the maximum speed. If the focus servo does not go correctly into a closed loop or the laser light shines on the mirror section at the outermost edge of the disc, the same symptom is occurred.
▯▯	PAUSE	Tracking servo close/open	Pressing this key when the focus servo and spindle servo are operating correctly in closed loops puts the tracking servo into a closed loop, displays the track number being played back and the elapsed time on the front panel, and outputs the playback signal. If the elapsed time is not displayed or not counted correctly or the audio is not played back correctly, it may be that the laser is shining on the section with no sound recorded at the outer edge of the disc, that something is out of adjustment, or that there is some other problem. This key is a toggle key and open/close the tracking servo alternately. This key has no effect if no disc is mounted.

Code	Key name	Function in test mode	Explanation
⏪ / ⏮	TRACK/ MANUAL SEARCH REV	Carriage reverse (inwards)	Moves the pickup position toward the inner diameter of the disc. When this key is pressed with the tracking servo in a closed loop, the tracking servo automatically goes into an open loop. Since the motor does not automatically stop at the mechanical end point in test mode, be careful with this operation.
⏭ / ⏩	TRACK/ MANUAL SEARCH FWD	Carriage forward (outwards)	Moves the pickup position toward the outer diameter of the disc. When this key is pressed with the tracking servo in a closed loop, the tracking servo automatically goes into an open loop. Since the motor does not automatically stop at the mechanical end point in test mode, be careful with this operation.
☐	STOP	Stop	Initializes and the disc rotation stops The pickup and disc remain where they are when this key is pressed.
⏏	EJECT	CD magazine eject	Stores Disc 1 in the CD magazine, then ejects the CD magazine. However, even though the CD magazine is ejected, the pickup does not return to the park position. Even if the CD magazine is mounted again, the pickup remains where it is.

Note : When inserting the magazine, disc 1 of the magazine is loaded automatically

[How to play back a disc in test mode]

In test mode, since the servos operate independently, playing back a disc requires that you operate the keys in the correct order to close the servos.
Here is the key operation sequence for playing back a disc in test mode.

PGM	Lights up the laser diode and closes the focus servo.
⇩	
PLAY ▷	Starts the spindle motor and closes the spindle servo.
⇩	
PAUSE ▯▯	Closes the tracking servo.

Wait at least 2-3 seconds between each of these operations.

1. Focus offset adjustment

● Objective	Sets the DC offset for the focus error amp.		
● Symptom when out of adjustment	The model does not focus in and the RF signal is dirty.		
● Measurement instrument connections	Connect the oscilloscope to TP1, Pin 6 (FCS ERR).	● Player state	Test mode, stopped (just the Power switch on)
	[Settings] 5 mV/division 10 ms/division DC mode	● Adjustment location	VR103 (FCS OFS)
		● Disc	None needed

[Procedure]
Adjust VR103 (FCS OFS) so that the DC voltage at TP1, Pin 6 (FCS ERR) is −150±50 mV.

2. Grating adjustment

● Objective	To align the tracking error generation laser beam spots to the optimum angle on the track.		
● Symptom when out of adjustment	Play does not start, track search is impossible, tracks are skipped.		
● Measurement instrument connections	Connect the oscilloscope to TP1, Pin 2 (TRK ERR) via a low pass filter. (See Figure 2) [Settings] 50 mV/division 5 ms/division DC mode	● Player state ● Adjustment location ● Disc	Test mode, focus and spindle servos closed and tracking servo open. Pickup grating adjustment slit YEDS-7

[Procedure]

1. Move the pickup to the outer edge of the disc with the MANUAL SEARCH FWD ▷▷ or ◁◁ key so that the grating adjustment slit is at the outer edge of the disc where it can be adjusted.

   Note: For Multi-play CD type, use the TRACK/MANUAL SEARCH FWD ▷▷|/▷▷ or ◁◁/|◁◁ key to move the pickup to halfway across the disc (R = 35 mm).

2. Press the PGM key, then the PLAY ▷ key in that order to close the focus servo then the spindle servo.

3. Insert an ordinary screwdriver into the grating adjustment slit and adjust the grating to find the null point. For more details, see the next page.

4. If you slowly turn the screwdriver clockwise from the null point, the amplitude of the wave gradually increases, then if you continue turning the screwdriver, the amplitude of the wave becomes smaller again.
   Turn the screwdriver clockwise from the null point and set the grating to the first point where the wave amplitude reaches its maximum.

   Reference: Figure 3 shows the relation between the angle of the tracking beam with the track and the waveform.
   Note: The amplitude of the tracking error signal is about 3 Vp-p (when a 39 kΩ + 0.001 μF low pass filter is used). If this amplitude is extremely small (2 Vp-p or less), then the objective lens may be dirty or the pickup malfunctioning. If the difference between the amplitude of the error signal at the innermost edge and outermost edge of the disc is more than 10%, the grating is not adjusted to the optimum point, so adjust it again.

5. Return the pickup to more or less midway across the disc with the TRACK/MANUAL SEARCH REV ◁◁/|◁◁ key, press the PAUSE ▯▯ key and double check that the track number and elapsed time are displayed on the front panel. If they are not displayed at this time or the elapsed time changes irregularly, double check the null point and adjust the grating again.

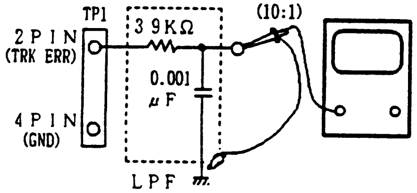
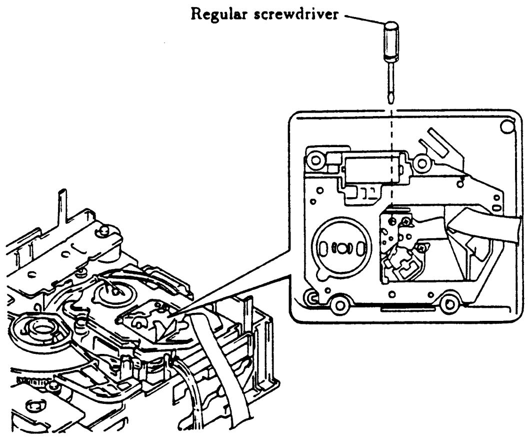


Figure 2



Adjustment Locations

[How to find the null point]

When you insert the regular screwdriver into the slit for the grating adjustment and change the grating angle, the amplitude of the tracking error signal at TP1 Pin 2 changes. Within the range for the grating, there are five or six locations where the amplitude of the wave reaches a minimum. Of these five or six locations, there is only one at which wave form is smooth. This location is where the three laser beams divided by the grating are all right above the same track. (See Figure 3.)

This point is called the null point. When adjusting the grating, this null point is found and used as the reference position.

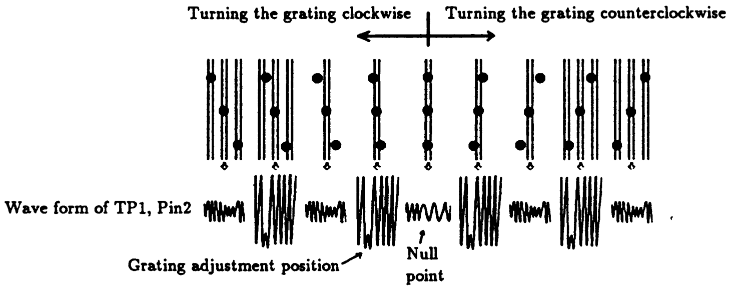
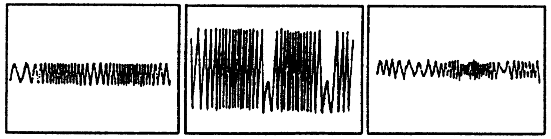

Turning the grating clockwise
Turning the grating counterclockwise
Wave form of TP1, Pin2
Grating adjustment position
Null point

Figure 3



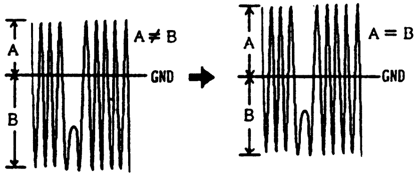
Null point wave form
Maximum amplitude wave form
Wave form other than the null point

3. Tracking error balance adjustment

● Objective	To correct for the variation in the sensitivity of the tracking photodiode.		
● *Symptom when out of adjustment*	*Play does not start or track search is impossible.*		
● Measurement instrument connections	Connect the oscilloscope to TP1, Pin 2 (TRK ERR). This connection may be via a low pass filter. [Settings] 50 mV/division 5 ms/division DC mode	● Player state	Test mode, focus and spindle servos closed and tracking servo open
		● Adjustment location	VR102 (TRK BAL)
		● Disc	YEDS-7

[Procedure]

1. Move the pickup to midway across the disc (R = 35 mm) with the TRACK/MANUAL SEARCH FWD ⏭/⏩ or ⏪/⏮ key.
2. Press the PGM key, then the PLAY key in that order to close the focus servo then the spindle servo.
3. Line up the bright line (ground) at the center of the oscilloscope screen and put the oscilloscope into DC mode.
4. Adjust VR102 (TRK BAL) so that the positive amplitude and negative amplitude of the tracking error signal at TP1 Pin 2 (TRK ERR) are the same (in other words, so that there is no DC component).



When there is a DC component

When there is no DC component

---

4. Pickup radial/tangential tilt adjustment

● Objective	To adjust the angle of the pickup relative to the disc so that the laser beams are shone straight down into the disc for the best read out of the RF signals.		
● Symptom when out of adjustment	Sound broken ; some discs can be played but not others.		
● Measurement instrument connections	Connect the oscilloscope to TP1, Pin 1 (RF). [Settings] 20 mV/division 200 ns/division AC mode	● Player state	Test mode, play
		● Adjustment location	Pickup radial tilt adjustment screw and tangential tilt adjustment screw
		● Disc	YEDS-7

[Procedure]

1. Press the TRACK/MANUAL SEARCH FWD ⏭/⏩ or ⏪/⏮ key to move the pickup to halfway across the disc (R = 35 mm).
   Press the PGM key, the PLAY ▷ key, then the PAUSE ⏸ key in that order to close the focus servo then the spindle servo and put the player into play mode.
2. First, adjust the radial tilt adjustment screw with an M 3-mm hexagonal wrench so that the eye pattern (the diamond shape at the center of the RF signal) can be seen the most clearly. For Multi-play CD type, use a Phillips screwdriver.
3. Next, adjust the tangential tilt adjustment screw with an M 3-mm hexagonal wrench so that the eye pattern (the diamond shape at the center of the RF signal) can be seen the most clearly (Figure 5). For Multi-play CD type, use a Phillips screwdriver.
4. Adjust the radial tilt adjustment screw and the tangential tilt adjustment screw again so that the eye pattern can be seen the most clearly. As necessary, adjust the two screws alternately so that the eye pattern can be seen the most clearly.

Note : Radial and tangential mean the directions relative to the disc shown in Figure 4.

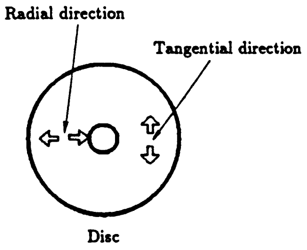
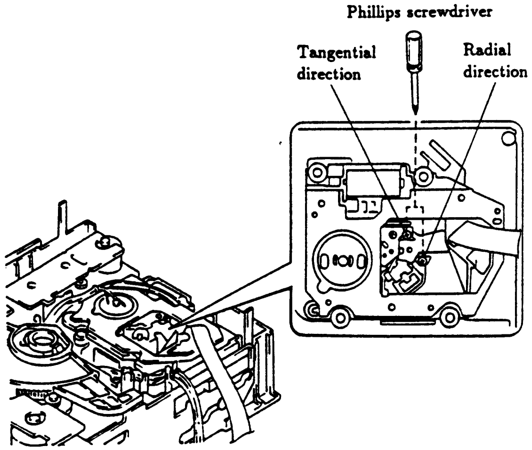


Figure 4



Adjustment Locations

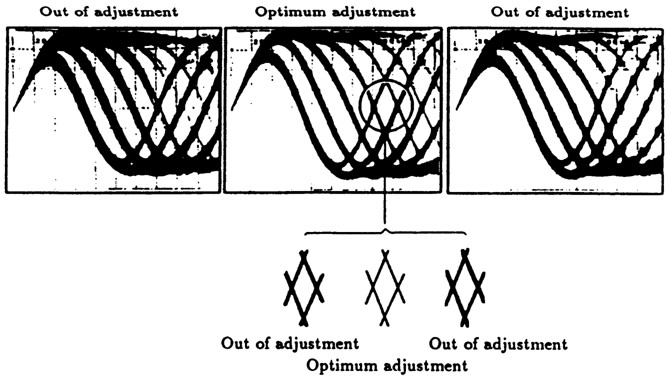

Out of adjustment
Optimum adjustment
Out of adjustment
Out of adjustment
Out of adjustment
Optimum adjustment

Figure 5 Eye pattern

5. RF level adjustment

● Objective	To optimize the playback RF signal amplitude		
● Symptom when out of adjustment	No play or no search		
● Measurement instrument connections	Connect the oscilloscope to TP1, Pin 1 (RF). [Settings] 50 mV/division 10 ms/division AC mode	● Player state	Test mode, play
		● Adjustment location	VR1 (laser power)
		● Disc	YEDS-7

[Procedure]

1. Move the pickup to midway across the disc (R = 35 mm) with the TRACK/MANUAL SEARCH FWD ▷▷|/▷▷ or ◁◁/|◁◁ key, then press the PGM key, then the PLAY ▷ key in that order to close the respective servos and put the player into play mode..
2. Adjust VR1 (laser power) so that the RF signal amplitude is 1.2 Vp-p±0.1 V.

6. Focus servo loop gain adjustment

● Objective	To optimize the focus servo loop gain		
● Symptom when out of adjustment	Playback does not start or focus actuater noisy		
● Measurement instrument connections	See Figure 6. [Settings] CH1 CH2 20 mV/division 5 mV/division X-Y mode	● Player state	Test mode, play
		● Adjustment location	VR152 (FCS GAN)
		● Disc	YEDS-7

[Procedure]

1. Set the AF generator output to 1.2 kHz and 1 Vp-p.
2. Press the TRACK/MANUAL SEARCH FWD ⏭/⏩ or ⏪/⏮ key to move the pickup to halfway across the disc (R = 35 mm), then press the PGM key, the PLAY ▷ key, then the PAUSE ⏸ key in that order to close the corresponding servos and put the player into play mode.
3. Adjust VR152 (FCS GAN) so that the Lissajous wave form is symmetrical about the X axis and the Y axis.

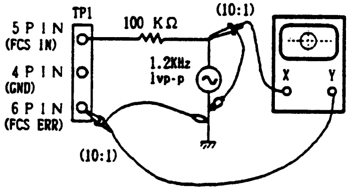
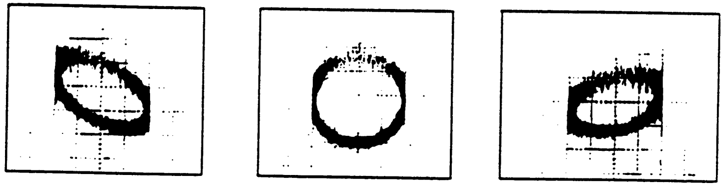


Figure 6

Focus Gain Adjustment



Higher gain Optimum gain Lower gain

---

7. Tracking servo loop gain adjustment

● Objective	To optimize the tracking servo loop gain		
● Symptom when out of adjustment	Playback does not start, during searches the actuator is noisy, or tracks are skipped.		
● Measurement instrument connections	See Figure 7. [Settings] CH1 CH2 50 mV/division 50 mV/division X-Y mode	● Player state	Test mode, play
		● Adjustment location	VR151 (TRK GAN)
		● Disc	YEDS-7

[Procedure]

1. Set the AF generator output to 1.2 kHz and 1 Vp-p.
2. Press the TRACK/MANUAL SEARCH FWD ⏭/⏩ or ⏪/⏮ key to move the pickup to halfway across the disc (R = 35 mm), then press the PGM key, the PLAY ▷ key, then the PAUSE ⏸ key in that order to close the corresponding servos and put the player into play mode.
3. Adjust VR151 (TRK GAN) so that the Lissajous wave form is symmetrical about the X axis and the Y axis.

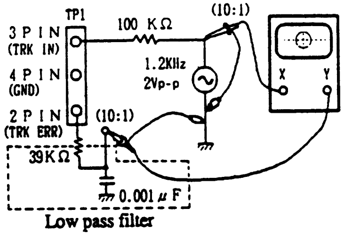
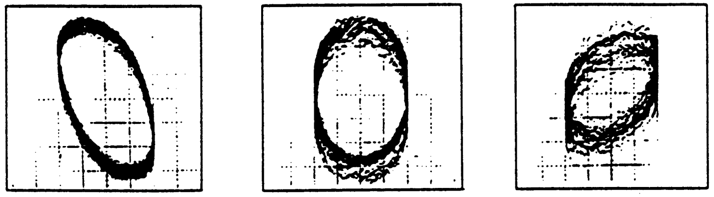


Figure 7

Tracking Gain Adjustment



Higher gain Optimum gain Lower gain

8. Focus error signal(focus S curve)verification

● Objective	To judge whether the pickup is ok or not by observing the focus error signal. The pickup is judged from the amplitude of the tracking error signal (as discussed in the section on adjusting the tracking error balance) and the wave form for the focus error signal.		
● Symptom when out of adjustment			
● Measurement instrument connections	Connect the oscilloscope to TP1 Pin 6 (FOCS ERR). [Settings] 100 mV/division 5 ms/division DC mode	● Player state	Test mode, stop
		● Adjustment location	None
		● Disc	YEDS-7

[Procedure]

1. Connect TP1 Pin 5 to ground.
2. Mount the disc.
3. While watching the oscilloscope screen, press the PGM key and observe the wave form in Figure 8 for a moment. Verify that the amplitude is at least 2.5 Vp-p and that the positive and negative amplitude are about equal. Since the wave form is only output for a moment when the PGM key is pressed, press this key over and over until you have checked the wave form.

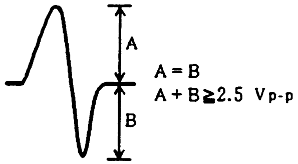


Figure 8

[Judging the pickup]

Do not judge the pickup until all the adjustments have been made correctly. In the following cases, there may be something wrong with the pickup.

1. The tracking error signal amplitude is extremely small (less than 2 Vp-p).
2. The focus error signal amplitude is extremely small (less than 2.5 Vp-p).
3. The positive and negative amplitudes of the focus error signal are extremely asymmetrical (2 : 1 ratio or more).
4. The RF signal is too small (less than 0.8 Vp-p) and even if VR1 is adjusted (laser power), the RF signal can not be brought up to the standard level.

6. FOR HB AND HEWZIW TYPES

NOTES:

- *Parts without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

6.1 CONTRAST OF MISCELLANEOUS PARTS

The XD−Z64M/HB and HEWZIW types are the same as the XD−Z64M/HE type with the exception of the following sections.

Mark	Symbol & Description	Part No.			Remarks
		XD-Z64M/ HE type	XD-Z64M/ HB type	XD-Z64M/ HEWZIW type	
◉	AF assembly	AWZ3333	AWZ3333	AWZ3334	
	VR assembly	Non supply	Non supply	Non supply	*1
	HEAD PHONE assembly	Non supply	Non supply	Non supply	*2
◉	SUB TRANS assembly	AWR1056	AWR1055	AWR1057	
⚠	FU101, FU151, FU152 Fuse (T1.6A/250V)	AEK−405	AEK−510	AEK−405	
⚠	FU102 Fuse (T1.25A/250V)	AEK−018	AEK−509	AEK−018	
⚠	AC Power cord	ADG1049	ADG1087	ADG1049	
	Screw (EARTH)	....	....	ABA1047	
	Operating instructions (Dutch, Swedish, Spanish, Portuguese)	ARC1243	....	....	
	Operating instructions (English, French, German, Italian)	ARE1175	....	....	
	Operating instructions (English)	....	ARB1284	....	
	Operating instructions (German, Italian)	....	....	ARC1237	

*1 : The VR assembly of HE and HB type is identical assemblies.
*2 : The HEAD PHONE assembly of HE and HB type is identical assemblies.

6.2 AF assembly (AWZ3334)

The AF assembly (AWZ3334) is the same as the AF assembly (AWZ3333) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		AWZ3333	AWZ3334	
	L501, L502	ATH−133	ATH−059	
	L503, L504	....	ATH−059	
	C162 (0.01μF/AC250V)	ACG1005	....	
	C162	....	CQMA473K250	
	C321, C322	....	CCDCH101J50	
	C502, C503, C513, C514	....	CKDYB103K50	
	C511, C512	....	CKDYB102K50	
	C607, C608	....	CCMSL101J50	
	C801−C804 (390p)	....	ACG1026	
	C805−C808	....	CKMYB391K50	
	C831, C832, C1003, C1004	CCCSL101J50	CCMSL101J50	
	C851−C853, C855	....	CKDYF473Z50	
	C854	....	CQMA224K50	
	C856−C858	CKDYB471K50	CKMYB471K50	
	C1001, C1002	CCCSL101J50	CKMYB391K50	
	C1013, C1014	....	CKDYB471K50	
	R351, R352	....	RD1/8PM222J	
	R501, R502	RD1/4PMFL100J	RD1/4PMFL101J	
	R807, R808	....	RD1/8PM221J	
	R1001, R1002	RD1/8PM102J	RD1/8PM222J	

6.3 VR assembly (HEWZIW type)

The VR assembly (HEWZIW type) is the same as the VR assembly (HE type) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		HE type	HEWZIW type	
	C561, C562	....	CKMYB221K50	

6.4 HEAD PHONE assembly (HEWZIW type)

The HEAD PHONE assembly (HEWZIW type) is the same as the HEAD PHONE assembly (HE type) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		HE type	HEWZIW type	
	C451, C452	....	CKDYF473Z50	
	C453	CKDYF473Z50	....	
	R453	RD1/8PM100J	....	

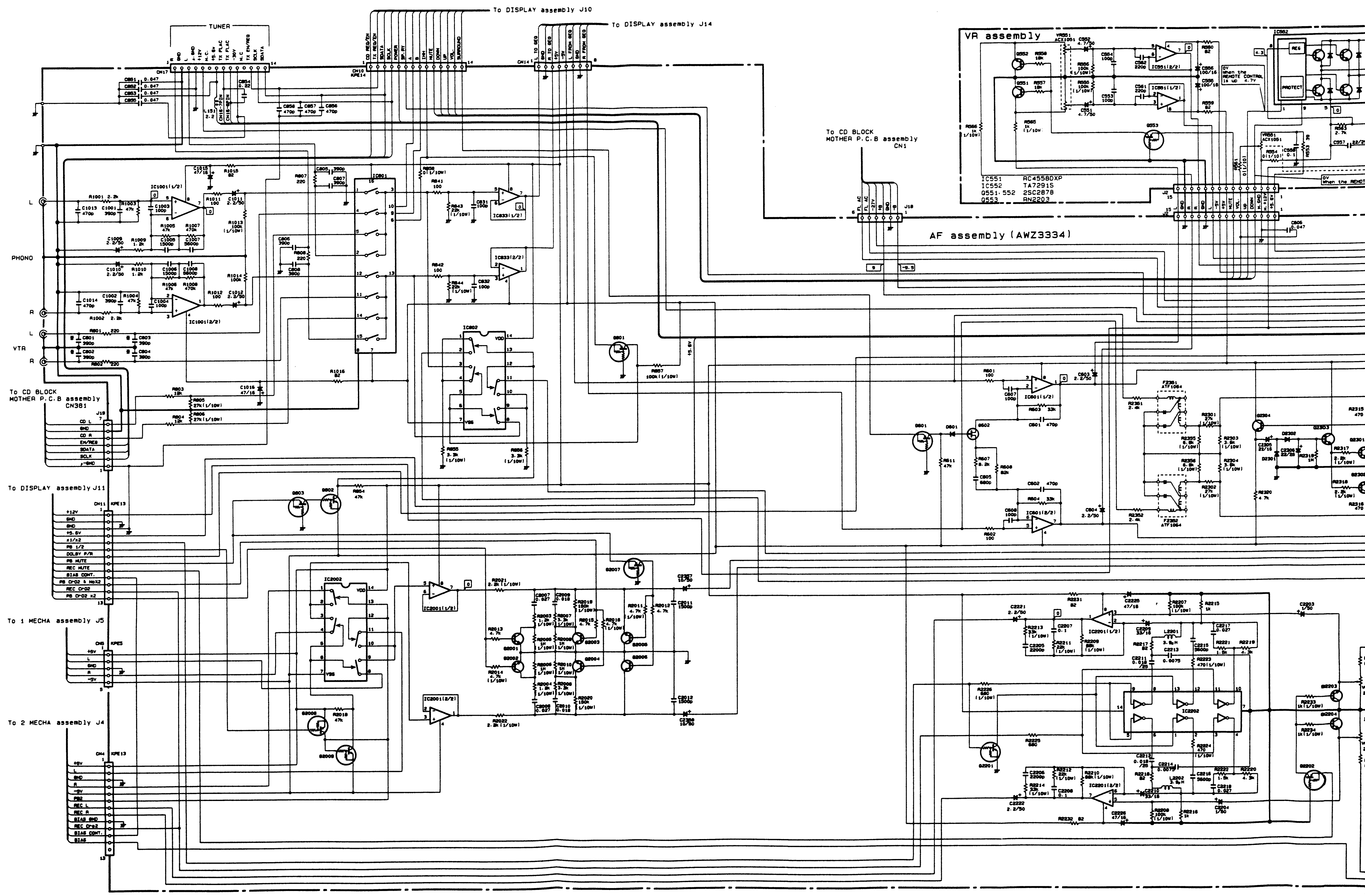
6.5 SUB TRANS assembly (AWR1055 and AWR1057)

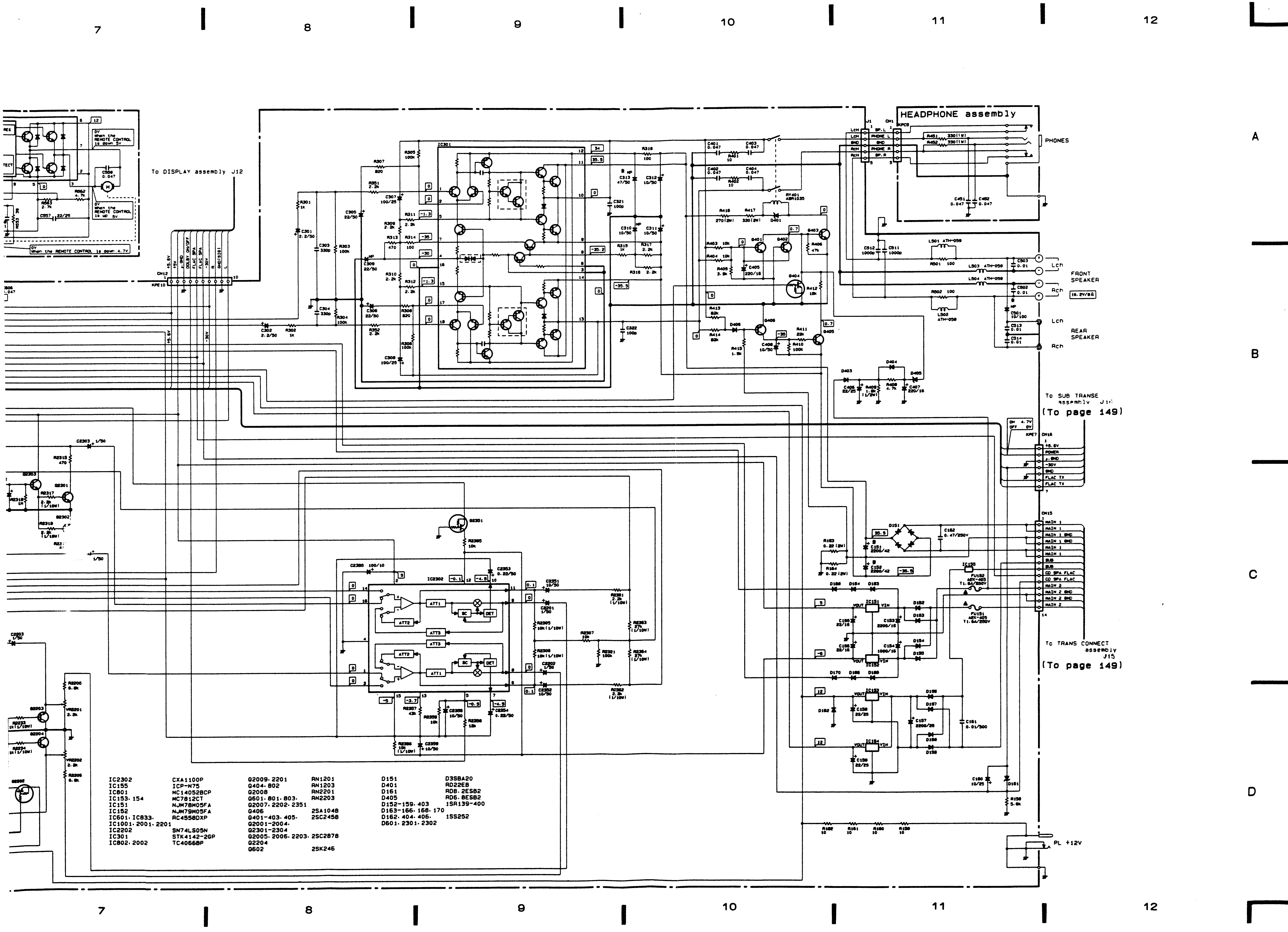
The SUB TRANS assembly (AWR1055 and AWR1057) is the same as the SUB TRANS assembly (AWR1056) with the exception of the following sections.

Mark	Symbol & Description	Part No.			Remarks
		AWR1056	AWR1055	AWR1057	
	L101	....	....	ATF−151	
⚠	T101 Power transformer	ATT1149	ATT1149	ATT1144	
	C109 (0.01μF/AC400V)	....	....	ACG1002	

Note : Besides, the difference parts between the SUB TRANS assemblies of the HB type (AWR1055) and the HE type (AWR1056) is the jumper wire (220V and 240V).
For detailes, refer to LINE VOLTAGE SELECTION (See page 148).

6.6 SCHEMATIC DIAGRAM and P.C.BOARD PATTERNS (HEWZIW type)

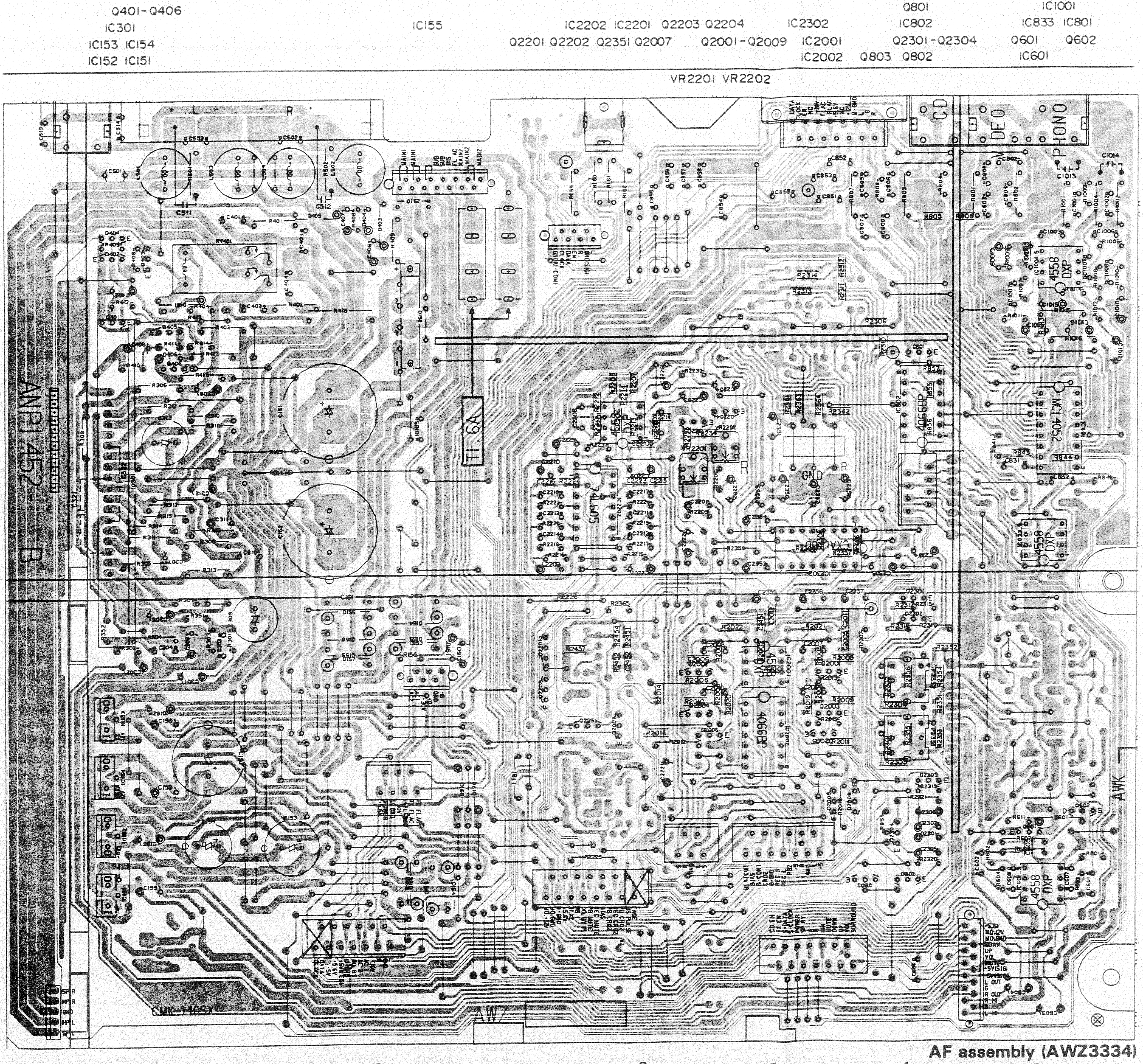

To DISPLAY assembly J10
To DISPLAY assembly J14
TUNER
CN17
CN10 KPE14
CN14
VR assembly
VR551 ACX1051
IC551 RC4558DXP
IC552 TA7291S
Q551·552 2SC2878
Q553 RN2203
IC552
PROTECT
REG
0V when the REMOTE CONTROL is up 4.7V
To CD BLOCK MOTHER P.C.B assembly CN1
J18
J2
AF assembly (AWZ3334)
L
PHONO
R
VTR
IC1001(1/2)
IC1001(2/2)
IC801
IC833(1/2)
IC833(2/2)
IC802
Q801
To CD BLOCK MOTHER P.C.B assembly CN381
J19
CD L
GND
CD R
EN/REQ
SDATA
SCLK
μ-GND
To DISPLAY assembly J11
CN11 KPE13
+12V
GND
+5.6V
x1/x2
PB 1/2
DOLBY P/R
PB MUTE
REC MUTE
BIAS CONT.
PB CrO2 & MsX2
REC CrO2
PB CrO2 x2
To 1 MECHA assembly J5
CN5 KPE5
+5V
-5V
To 2 MECHA assembly J4
CN4 KPE13
PB2
REC L
REC R
BIAS GND
REC CrO2
BIAS CONT.
BIAS
IC2002
IC2001(1/2)
IC2001(2/2)
Q803
Q802
Q2007
Q2008
Q2009
Q2001
Q2002
Q2003
Q2004
Q2005
Q2006
IC501(1/2)
IC501(2/2)
Q501
D501
Q502
F2351 ATF1064
F2352 ATF1064
Q2304
Q2303
Q2301
D2302
D2301
IC2201(1/2)
IC2201(2/2)
IC2202
L2201 3.9μH
L2202 3.9μH
Q2201
Q2202
Q2203
Q2204


7
8
9
10
11
12
A
B
C
D
HEADPHONE assembly
PHONES
To DISPLAY assembly J12
FRONT SPEAKER
Lch
Rch
REAR SPEAKER
16.2V/8Ω
To SUB TRANSE assembly J1
(To page 149)
To TRANS CONNECT assembly J15
(To page 149)
PL +12V
IC301
IC2302
IC151
IC152
IC153
IC154
CN12
KPE10
CN15
CN16
KPE7
ATT1
ATT2
ATT3
SC
DET
RY401 ASR1035
FU151 AEK-405 T1.6A/250V
FU152 AEK-405 T1.6A/250V
+5.6V
POWER
GND
-30V
FLAC TX
MAIN 1
MAIN 2
SUB
CD SPA FLAC
VOUT
VIN

IC2302	CXA1100P
IC155	ICP-N75
IC801	MC14052BCP
IC153·154	MC7812CT
IC151	NJM78M05FA
IC152	NJM79M05FA
IC601·IC833· IC1001·2001·2201	RC4558DXP
IC2202	SN74LS05N
IC301	STK4142-2GP
IC802·2002	TC4066BP

Q2009·2201	RN1201
Q404·802	RN1203
Q2008	RN2201
Q601·801·803· Q2007·2202·2351	RN2203
Q406	2SA1048
Q401-403·405· Q2001-2004· Q2301-2304	2SC2458
Q2005·2006·2203· Q2204	2SC2878
Q602	2SK246

D151	D3SBA20
D401	RD22EB
D161	RD8.2ESB2
D405	RD6.8ESB2
D152-159·403 D163-166·168·170	1SR139-400
D162·404·406· D601·2301·2302	1SS252


1
2
3
4
5
Q401-Q406
IC301
IC153 IC154
IC152 IC151
IC155
IC2202 IC2201 Q2203 Q2204
Q2201 Q2202 Q2351 Q2007
Q2001-Q2009
IC2302
IC2001
IC2002
Q801
IC802
Q2301-Q2304
Q803 Q802
IC1001
IC833 IC801
Q601 Q602
IC601
VR2201 VR2202
A
B
C
D
ANP1452-B
AWK
AWZ
GMK-140SX

AF assembly (AWZ3334)

NOTE

1. This P.C.B connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the following Table.

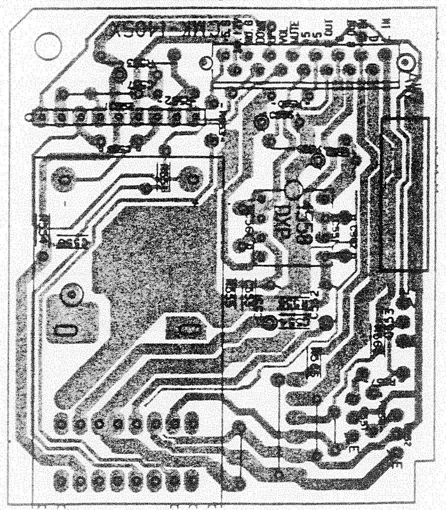
P.C.B. pattern diagram indication	Corresponding part symbol	Part Name
Q504 E	E or E	Transistor
Q215	or	Radiator type transistor
D203	D203	Diode
R237	R237	Resistor
C513	+	Capacitor (Polarity)
C518		Capacitor (Non-polarity)

Others

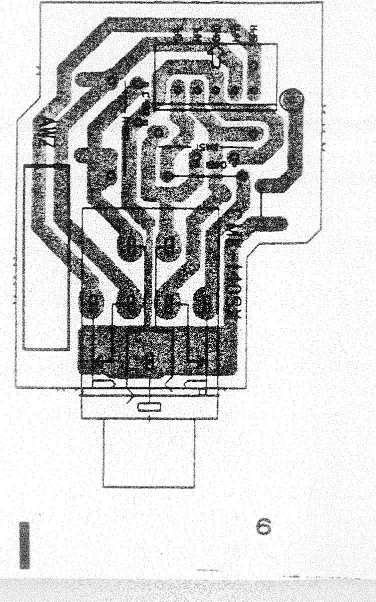
P.C.B. pattern diagram indication	Part Name
IC	IC
S	Switch
RY	Relay
L	Coil
F	Filter
VR	Variable resistor or Semi-fixed resistor

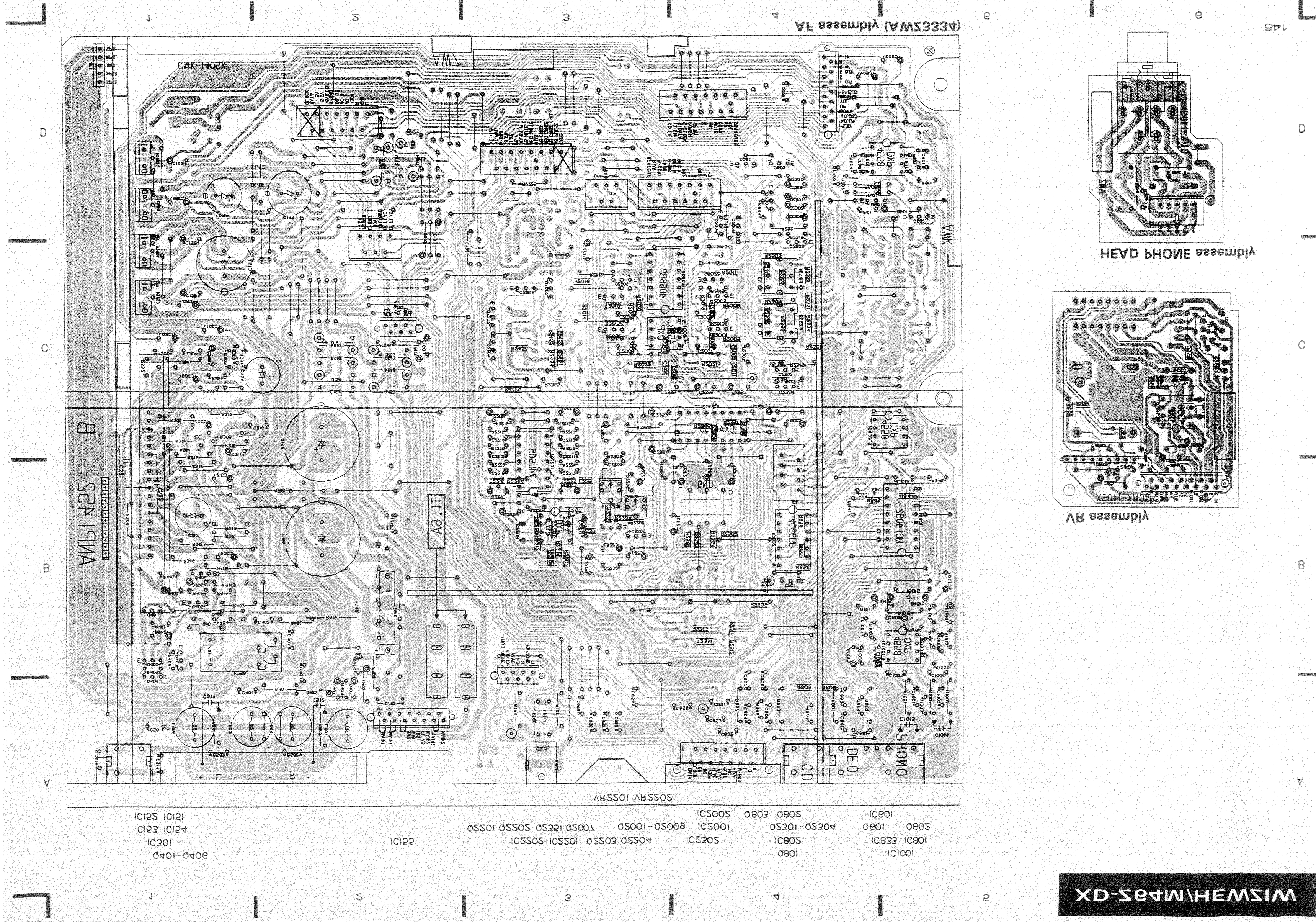
3. The capactor terminal marked with ◎(double circles) shows negatine termianl.
4. The diode terminal marked with ◎ (double circles) shows cathode side.
5. The transistor terminal to which E is affixed shows the emitter.

VR assembly



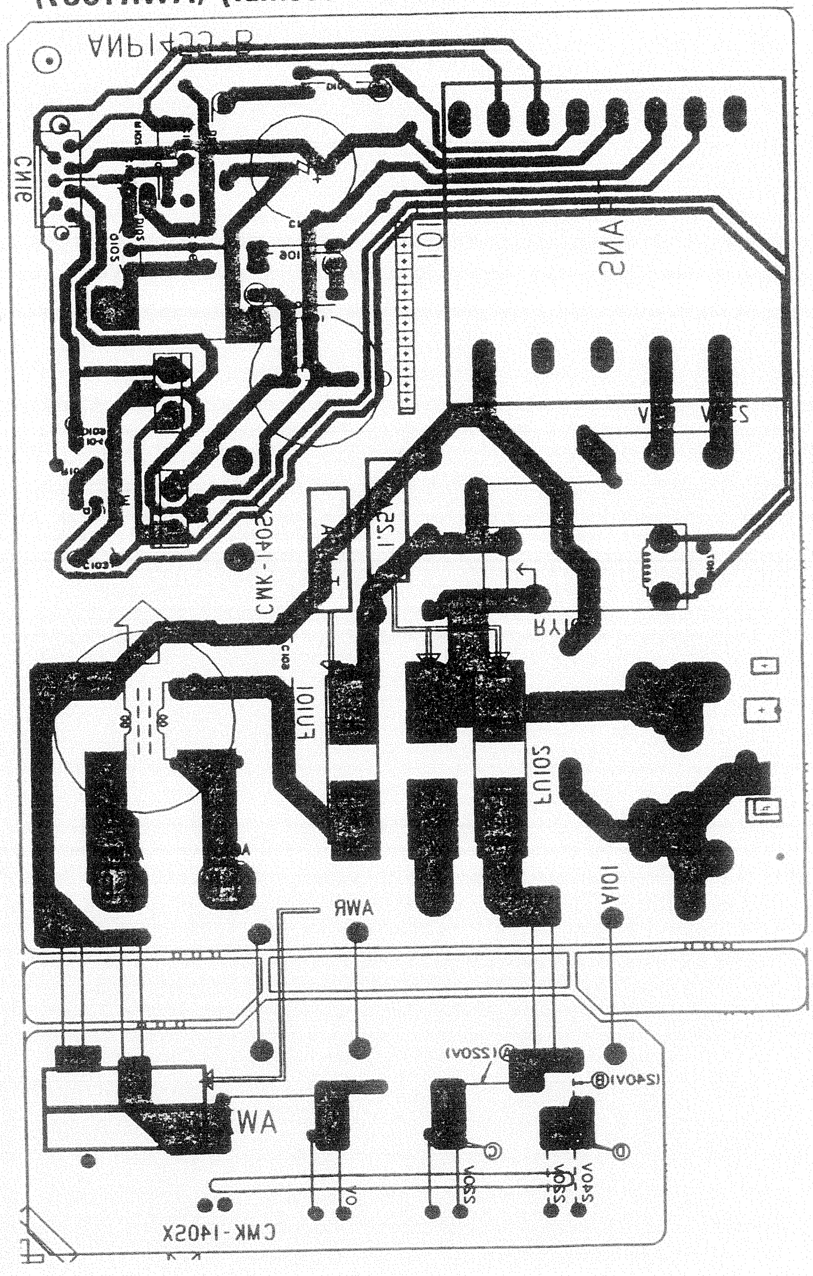
HEAD PHONE assembly




AF assembly (AWZ3334)
HEAD PHONE assembly
VR assembly
A
B
C
D
1
2
3
4
5
6

A

SUB TRANS assembly (AWR1057)


ANP1452-B
CN16
SNA
IC101
FU101
FU102
RY101
CMK-140S2
AWR
(220V)
(240V)
CMK-140SX
V01A

B

C

D

3

2

1

Line Voltage Selection
(For HE, HB and HEWZIW types)

Line voltage can be changed with the following steps.

1. Disconnect the AC Power cord.
2. Remove the top cover.
3. Change the position of the jumper wires Ⓐ – Ⓓ as follows ;

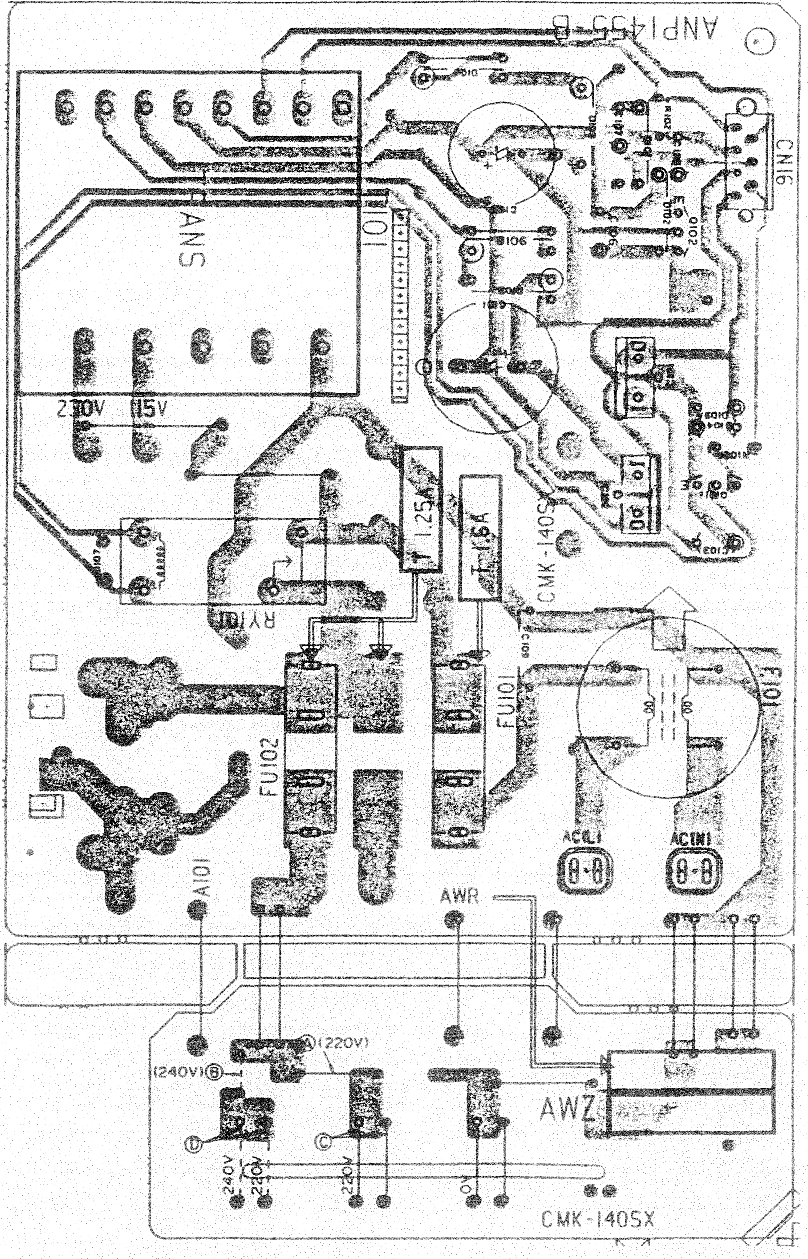
Jumper wire \ Voltage	220V	240V
Ⓐ	○	×
Ⓑ	×	○
Ⓒ	○	×
Ⓓ	×	○

○ : Be needed
× : Be needless

4. Stick the line voltage label on the rear panel.

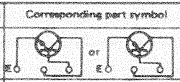
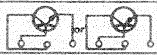
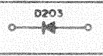
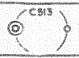
Description	Part No.
220V level	AAX−193
240V label	AAX−192

SUB TRANS assembly (AWR1057)



NOTE

1. This P.C.B connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the following Table.

P.C.B. pattern diagram indication	Corresponding part symbol	Part Name
Q504 E	 E or E	Transistor
Q215	 or	Radiator type transistor
D203	 D203	Diode
R237	R237	Resistor
 C513		Capacitor (Polarity)
C518		Capacitor (Non-polarity)

Others

P.C.B. pattern diagram indication	Part Name
IC	IC
S	Switch
RY	Relay
L	Coil
F	Filter
VR	Variable resistor or Semi-fixed resistor

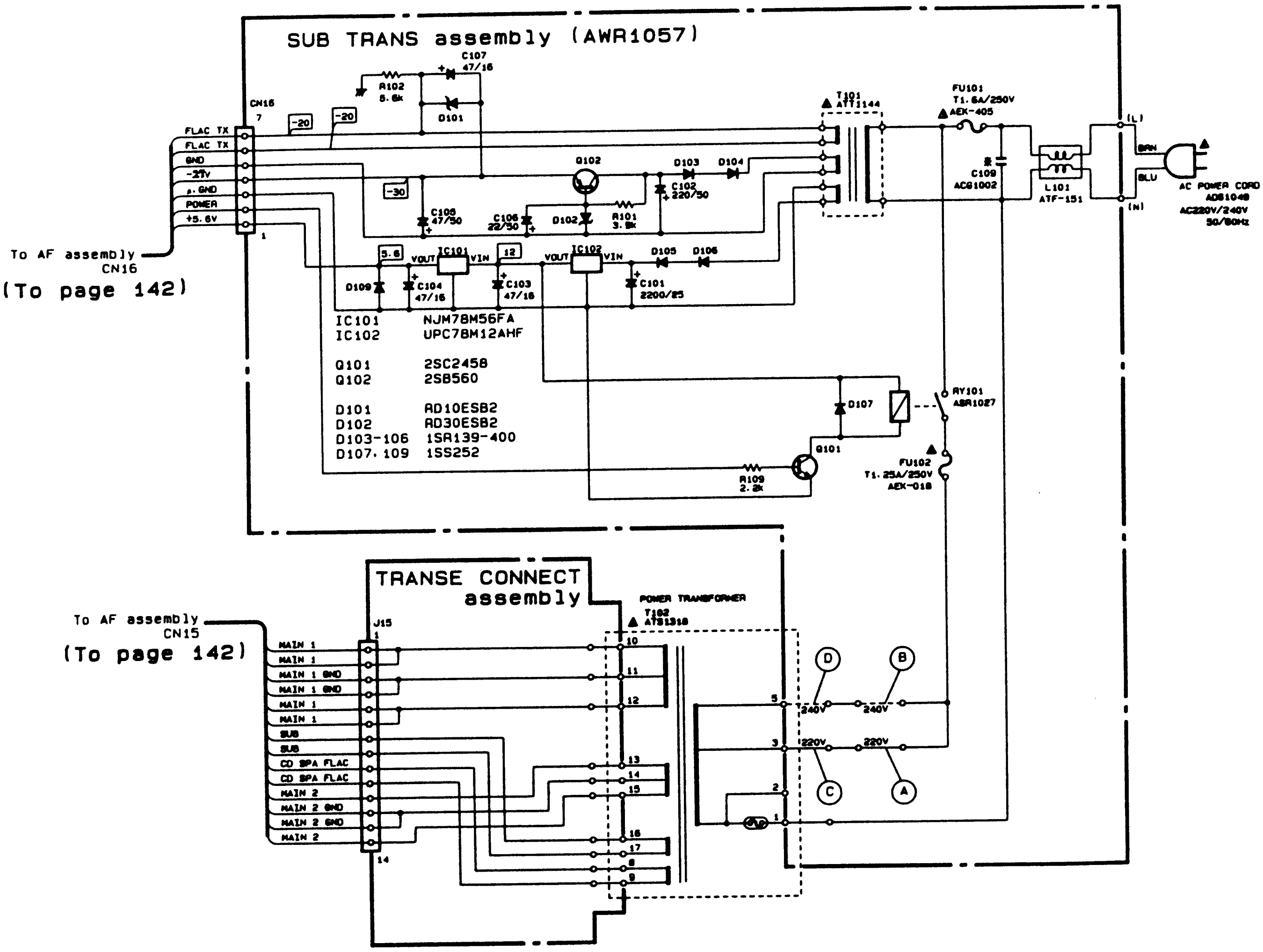
3. The capacitor terminal marked with ◎ (double circles) shows negative termianl.
4. The diode terminal marked with ◎ (double circles) shows cathode side.
5. The transistor terminal to which E is affixed shows the emitter.

A

B

C

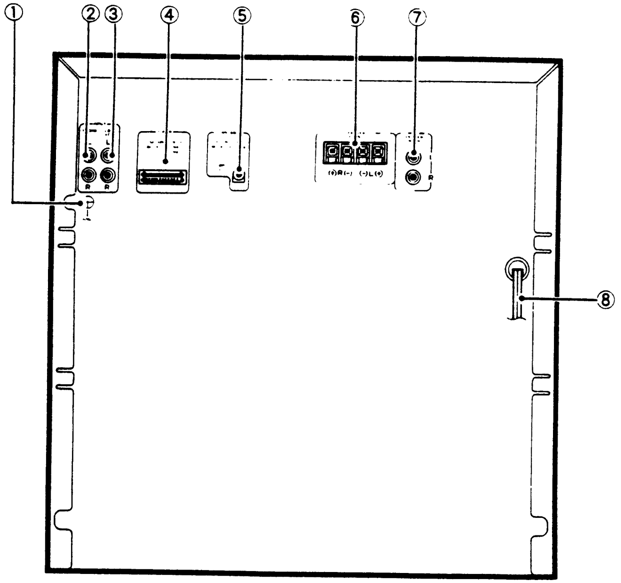
D


SUB TRANS assembly (AWR1057)
C107
47/16
R102
5.6k
D101
CN16
7
-20
-20
FLAC TX
FLAC TX
GND
-27V
μ.GND
POWER
+5.6V
1
To AF assembly
CN16
(To page 142)
-30
Q102
D103
D104
C102
220/50
C105
47/50
C106
22/50
D102
R101
3.9k
5.6
VOUT
IC101
VIN
12
VOUT
IC102
VIN
D105
D106
D109
C104
47/16
C103
47/16
C101
2200/25
IC101 NJM78M56FA
IC102 UPC78M12AHF
Q101 2SC2458
Q102 2SB560
D101 RD10ESB2
D102 RD30ESB2
D103-106 1SR139-400
D107, 109 1SS252
T101
ATT1144
FU101
T1.6A/250V
AEK-405
C109
ACG1002
L101
ATF-151
(L)
(N)
BRN
BLU
AC POWER CORD
ADG1049
AC220V/240V
50/60Hz
D107
RY101
ASR1027
Q101
R109
2.2k
FU102
T1.25A/250V
AEK-018
TRANSE CONNECT
assembly
To AF assembly
CN15
(To page 142)
J15
1
MAIN 1
MAIN 1
MAIN 1 GND
MAIN 1 GND
MAIN 1
MAIN 1
SUB
SUB
CD SPA FLAC
CD SPA FLAC
MAIN 2
MAIN 2 GND
MAIN 2 GND
MAIN 2
14
POWER TRANSFORMER
T102
ATS1318
10
11
12
13
14
15
16
17
8
9
5
3
2
1
240V
240V
220V
220V
D
B
C
A

1 2 3

7. PANEL FACILITIES

REAR PANEL FACILITIES



① Ground terminal (GND)
Use a screwdriver to connect with the ground terminal (except for PL-Z94).

② PHONO input jacks
Connect the output cord of the turntable to these jacks.

③ LD/VCR input jacks
Connect to audio output jacks of LD player or VCR, etc.

④ TUNER jacks
Connect the tuner input/output cord here.

⑤ TURNTABLE (DC 12 V OUTPUT) jack
This jack supplies power to the turntable (PL-Z94).

⑥ SPEAKERS terminals

L: Connect the left speaker system as seen from the listening position.

R: Connect the right speaker system as seen from the listening position.

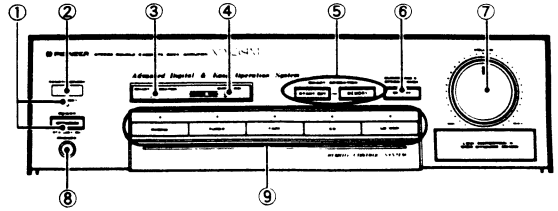
NOTE:
Connect a speaker system with a nominal impedance of between 8Ω to 16Ω

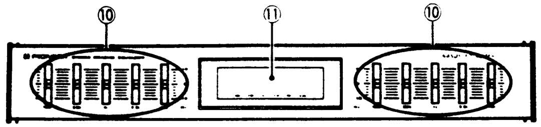
⑦ SURROUND (Rear) SPEAKER jack
Connect the surround (rear) speaker systems.

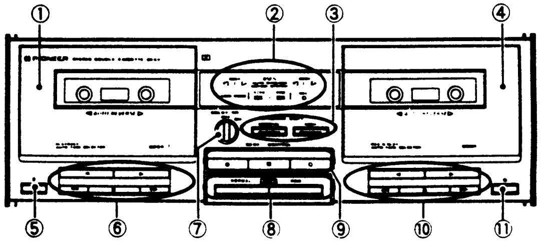
NOTE:
Connect a speaker system with a nominal impedance of 16 Ω or more.

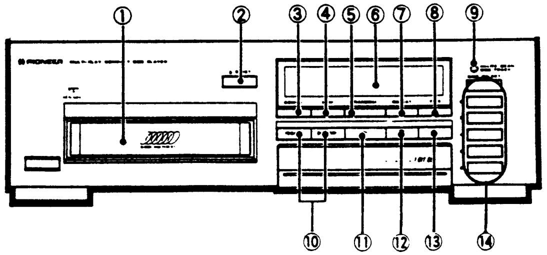
⑧ Power cord
Connect this to the AC wall socket.

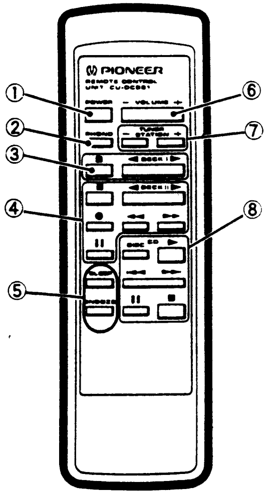
FRONT PANEL FACILITIES











- Tapes can be played back on Deck I; tapes can be played back and recorded on Deck II.
- Sound can be recorded as adjusted by the graphic equalizer (excluding synchro copy).

■ Amplifier section/Graphic equalizer section

① POWER STANDBY/ON button/indicator

This is the button for electric power.

ON:	When set to the ON position, power is supplied and the unit becomes operational.
STANDBY:	When set to the STANDBY position, the main power flow is cut and the unit is no longer fully operational. A minute flow of power feeds the unit to maintain operation readiness. The tuner section display indicates only the time. The STANDBY indicator lights when the power is STANDBY, and goes out during ON.

② REMOTE SENSOR window

③ SMART OPERATION indicator

Blinks when the SMART OPERATION mode is set to ON.

④ SURROUND indicator

Lights when the SURROUND & STEREO WIDE is set to ON.

⑤ SMART OPERATION buttons

[START/SET]

To operate the SMART OPERATION function and set the data.

[MEMORY]

To set the data for SMART OPERATION.

⑥ SURROUND & STEREO WIDE button

In ON position, you can enjoy SURROUND sound reproduction when the rear speakers are used.

In ON position, when the rear speakers are not used, you can enjoy STEREO WIDE sound reproduction with wider left-right spread.

NOTE:

SURROUND & STEREO WIDE effects cannot be obtained with a monaural signal source.

⑦ VOLUME control

⑧ PHONES (Headphone) jack

For stereo headphones.

NOTE:

There is no speaker output when headphones are plugged into the PHONES jack.

⑨ Input selector buttons/indicators

[PHONO]	Press to play records on a turntable connected to the PHONO jacks.
[TUNER]	Press to listen to radio broadcast.
[TAPE]	Press to listen to cassette tape.
[CD]	Press to listen to a compact disc.
[LD/VCR]	Press to listen to stereo component connected to the LD/VCR jacks.

⑩ Graphic equalizer controls

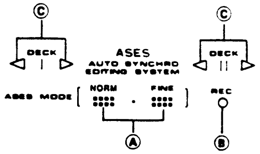
Fine adjustments in sound quality are possible using the 5 controls on the graphic equalizer.

⑪ DISPLAY section

■ Cassette Deck Section

① DECK I cassette door

② Operation indicators



ⒶASES (NORM, FINE):	Lights when the A.S.E.S. (Auto Synchro Editing System) is operating.
ⒷREC:	Lights when recording. Flashes when copying a tape. Slow flashing = Normal copy Rapid flashing = High speed copy
ⒸDirection (◁, ▷):	Shows direction of tape travel.

③ SYNCHRO COPY buttons

Used for tape copying.

NORMAL:	Copying from the Deck I tape to the Deck II tape at normal recording/playback speed.
HIGH:	Copying at about twice normal tape speed. (Copies can be made in about half the NORMAL time.)

④ DECK II cassette door

⑤ Deck I eject button

⑥ Deck I Operation buttons

▷	**PLAY (FWD)**	For playing back a tape in the forward mode.
◁	**PLAY (REV)**	For playing back a tape in the reverse mode.
☐	**STOP**	For stopping the tape.
►►	**FAST**	Fast forward in forward mode, rewind in reverse mode.
◄◄	**FAST**	Rewind in forward mode, fast forward in reverse mode.

⑦ DOLBY* NR switch

Set this switch to the ON position to activate the DOLBY NR system.

- Tapes recorded using Dolby noise reduction should always be played back with the noise reduction system on. Sound quality will be adversely affected if played back with the system off, or if tapes recorded using a different noise reduction system are played back with the Dolby NR system on.
- It is recommended that tapes recorded with Dolby B type NR be so marked on the label. This will help prevent incorrect setting of the noise reduction button during playback.

---

*

Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.

"DOLBY" and the double-D symbol ▯▯ are trademarks of Dolby Laboratories Licensing Corporation.

---

⑧ ASES (NORMAL, FINE) button

Used for automatically recording a CD on cassette tape.

⑨ DECK II CONTROL buttons

REC MUTE (O)	Used for creating a blank space between songs. Pressing this button once creates an unrecorded 4-second space. The unrecorded space is created for as long as this button is kept pressed during recording.
PAUSE (▯▯)	Temporarily stops tape travel. Cancels pause mode when pressed again.
REC (●)	To set to recording standby mode. Recording begins when you press the PLAY button (◁ or ▷).

⑩ Deck II Operation buttons:

Same as Deck I operation buttons ⑥.

⑪ Deck II eject button

■ CD player section

① Magazine insertion slot

② EJECT button

Press to eject a magazine. When pressed, any magazine inside is expelled forward.

③ COMPU button

Press this button and designate the number of minutes of tape for recording with the Manual/Track search button. The CD player then selects tunes and programs them automatically for recording so that the unrecorded portion at the end of the tape is at the shortest distance.

④ PGM (Program) button

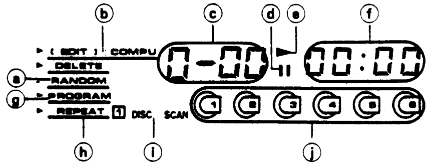
Use to program a sequence of tracks.

- Press this button after selecting a desired disc and track with DISC SELECT and track search buttons. Tunes will be added to the order in which they are specified.
- If only a DISC SELECT button is pressed, all tracks on the specified disc will be added to the program. The letters 'AL' will appear on the indicator.

⑤ RANDOM button

Press to begin random playback.

⑥ Indicators



ⓐ RANDOM:	Lights during random playback.
ⓑ (EDIT) COMPU:	Normally EDIT is light. When the COMPU button is pressed, COMPU lights up..
ⓒ 0-00 :	Indicates the disc and the music piece currently being heard.
ⓓ ▯▯:	Lights during temporarily interrupted playback.
ⓔ ▷:	Lights during playback.
ⓕ 00:00:	Displays the minutes and seconds of the elapsed time, total playback time, and remaining time.
ⓖ PROGRAM:	Lights after programming (after program has been memorized).
ⓗ REPEAT 1:	Lights during repeat playback of one tune. 1 extinguishes during repeat playback of all tunes.
ⓘ DISC SCAN:	Lights after pressing the HI-LITE SCAN button.
ⓙ ◐ (DISC symbol):	If a nonexistent disc is searched for, the corresponding disc symbol goes off.

⑦ REPEAT button

Press to perform repeat playback.

- If pressed during normal playback mode, all tracks on all the discs in the magazine will be played back repeatedly.
- If pressed during programmed playback, the programmed tracks will be repeatedly played back in the programmed order.
- In the case of random playback mode, after all the tracks have been played, random playback will start again.

⑧ TIME button

Use to select the method for displaying the playing time on the indicator panel.

Each time the button is pressed, the indication changes from TIME, REMAIN (track remain) and REMAIN (disc remain) : This will not be displayed during programmed playback to TOTAL in that order. (For details concerning the display contents, refer to the explanation about the indicators.)

⑨ HI-LITE SCAN DISC/TRACK button

If this button is pressed while the unit is stopped, the first ten seconds after the first minute of the first tune on each of the discs from DISC1 to DISC6 is played back in sequence. (DISC SCAN) If this button is pressed during DISC SCAN, the first ten seconds after the first minute of all the tunes on each of the discs from DISC1 to DISC6 is played back. (TRACK SCAN)

To reset the start-up time of HI-LITE SCAN, press the HI-LITE SCAN button during normal playback.

Enter the time of current playback in memory and ten- second passages on all the remaining tracks are played back at the memorized time.

⑩ Manual/Track search buttons (◁◁/⏮◁, ▷⏭/▷▷)

These buttons are used for track search during normal playback, programmed playback or pause. When these buttons are pressed, either the previous tune or the next tune is established. If they are kept depressed, either fast forward or rewind is established, depending upon the direction of pressing.

⑪ PLAY button (▷)

Press to begin playback, and to cancel the player from the pause mode.

⑫ PAUSE button (▯▯)

Press to temporarily interrupt playback. When pressed again, the pause mode is cancelled and playback resumes.

⑬ STOP button (☐)

Press to stop playback. When pressed, the player goes into stop mode and all operations stop.

When pressed during stop mode, the program stored in memory is cleared.

⑭ DISC SELECT buttons (1-6)

Use to select disc numbers for playback or programming.

Remote control unit

① POWER button

② PHONO button

Sets function to PHONO.

③ Deck I operation buttons

► ..... Forward play
◄ ..... Reverse play
■ ..... Stop

④ DECK II operation buttons

Same as Deck II operation buttons and DECK II CONTROL buttons on the CD cassette deck amplifier (Except for REC MUTE).

⑤ Timer operation buttons

SLEEP: Sets the sleep timer.
SNOOZE: Turns off power if pressed after timer playback begins. Timer playback begins again approx. 5 minutes later.

⑥ VOLUME + (UP)/− (DOWN) buttons

When pressed, VOLUME on the amplifier is actually moved by a motor.

⑦ TUNER STATION buttons

- Before operation, memorize broadcast stations in the STATION CALL buttons.

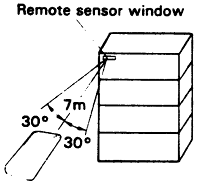
+ ………… Stations change in order in the upward direction.
− …… Stations change in order in the downward direction.

⑧ CD operation buttons

►	Play
DISC	DISC selection
■	Stop
▮▮	Pause
⏮◄, ►⏭	Track search

The amplifier input selector automatically switches to the music source being operated when you press the CD playback (►), cassette deck playback (◄, ►), or tuner station controls.

Range of remote control



When the remote control unit is pointed at the remote sensor window on the amplifier and any of its buttons is pressed, the tuner and other components can be operated by remote control.

Distance: Within a range of approx. 7 meters from the remote sensor window.

Angle: Within approx. 30 degrees from the center of the remote sensor window.

Remote control will not be possible if there is an obstacle between the remote control unit itself and the remote sensor window.

Performance of the remote control unit is adversely affected by strong fluorescent light. Keep such lights away, especially from the sensor window.

8. SPECIFICATIONS

Multi-CD cassette deck amplifier: XD-Z64M

Amplifier Section

DIN music power	50 W + 50 W (1 kHz, T.H.D. 1 %, 8 Ω)
Continuous Power Output (DIN)	33 W + 33 W (1 kHz, T.H.D. 1 %, 8 Ω)
Graphic equalizer frequency band	100 Hz, 330 Hz, 1 kHz, 3.3 kHz, 10 kHz, ±7 dB
S/N (DIN, continuous Power/50 mW)	
PHONO	68 dB/60 dB
Total Harmonic Distortion	
(40 Hz to 20,000 Hz, 15 W, 8 ohms)**	No more than 0.2 %
Input sensitivity/impedance	
PHONO (MM)	2.5 mV/47 kΩ
LD/VCR	150 mV/22 kΩ

Tape Deck Section

Systems	4 track, 2-channel stereo
Heads	Recording/playback head × 1 Playback head × 1 Erasing head × 1
Motor	DC servo 2 speed motor × 2
Wow and Flutter	No more than 0.09 % (WRMS)
Fast Winding Time	Approximately 95 seconds (C-60 tape)
Frequency Response (−20 dB recording):	
Normal tape	35 Hz to 14,000 Hz ±6 dB (EIAJ)
CrO_2 tape	35 Hz to 15,000 Hz ±6 dB (EIAJ)
Signal-to-Noise ratio	
Dolby NR OFF	56 dB (EIAJ)
Noise Reduction Effect	
Dolby NR ON	More than 10 dB (at 5 kHz)

CD Section

Type	Compact disc digital audio system
Operating temperature	+5°C − +35°C
Frequency response	2 Hz − 20 kHz
S/N	100 dB or more (EIAJ)
Wow and flutter	Limit of measurement (±0.001% W.PEAK) or less (EIAJ)
Number of channels	2 channels (stereo)

Miscellaneous

Power requirements	a.c. 220 Volts ~, 50/60 Hz
Power Consumption	240 W
Dimensions	360 (W) × 376 (H) × 307 (D) mm
Weight	10 kg

Furnished Parts

Operating Instructions	1
Remote control unit	1
Dry cell batteries	2

Accessories

EP Adaptor	1

- *Specifications and design subject to possible modification without notice due to improvement.*

*** Measured By Audio Spectrum Analyzer.*

The Magazine Type Multi-Play CD Players with mark and the Magazines with the same mark are compatible for 5-inch (12cm) discs.